APPENDIX D

Waterbody Crossing Tables

Required Crossing Criteria for Reclamation Facilities

Waterbody Crossing Tables

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Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f] AqL	AG	DW	Rec	Source of Information [b]
Phillips	1.11	Unnamed Tributary to East Fork Whitewater Creek	Lake/Pond						ERM Desktop
Phillips	1.37	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	1.69	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	2.30	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						Keystone Desktop
Phillips	2.47	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	2.81	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	4.61	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	5.31	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	5.45	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	5.94	Unnamed Tributary to Dunham Coulee	Intermittent						Keystone Desktop
Phillips	6.51	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	8.18	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	8.46	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	9.05	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	9.12	Unnamed Tributary to East Fork Whitewater Creek	Lake/Pond						ERM Desktop
Phillips	9.59	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	11.26	East Fork Whitewater Creek	Intermittent						ERM Desktop
Phillips	11.67	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Phillips	11.87	Unnamed Tributary to Cottonwood Creek	Intermittent						Keystone Desktop
Phillips	12.00	Unnamed Tributary to Cottonwood Creek	Intermittent						Keystone Desktop
Phillips	13.75	Unnamed Tributary to Cottonwood Creek	Intermittent						Keystone Desktop
Phillips	13.82	Unnamed Tributary to Cottonwood Creek	Intermittent						Keystone Desktop
Phillips	14.01	Unnamed Tributary to Cottonwood Creek	Intermittent						Keystone Desktop
Phillips	14.25	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Phillips	14.64	Unnamed Tributary to Cottonwood Creek	Lake/Pond						ERM Desktop
Phillips	15.00	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Phillips	15.17	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Phillips	15.68	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Phillips	16.42	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Phillips	16.96	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Phillips	17.89	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	17.92	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	18.09	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	18.35	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	18.41	Unnamed Tributary to Corral Coulee	Intermittent						Keystone Desktop
Phillips	18.98	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	19.18	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	22.15	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	22.32	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	22.70	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	22.74	Unnamed Tributary to Corral Coulee	Man Made Ditch						Keystone Desktop
Phillips	23.70	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	23.81	Corral Coulee	Intermittent						Keystone Desktop
Phillips	24.93	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Phillips	25.28	Frenchman River	Perennial	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	P	F	P	

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
Valley	25.56	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Valley	26.04	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Valley	26.80	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Valley	26.92	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Valley	27.02	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Valley	28.66	Unnamed Tributary to Frenchman River	Intermittent						ERM Desktop
Valley	29.56	Unnamed Tributary to Jack Creek	Intermittent						ERM Desktop
Valley	30.31	Unnamed Tributary to Jack Creek	Intermittent						Keystone Desktop
Valley	32.26	Unnamed Tributary to East Fork Cash Creek	Intermittent						ERM Desktop
Valley	32.32	East Fork Cash Creek	Intermittent						ERM Desktop
Valley	32.49	Unnamed Tributary to East Fork Cash Creek	Intermittent						ERM Desktop
Valley	33.01	Unnamed Tributary to Papoose Creek	Intermittent						ERM Desktop
Valley	33.08	Unnamed Tributary to Papoose Creek	Intermittent						ERM Desktop
Valley	33.68	Unnamed Tributary to Papoose Creek	Intermittent						ERM Desktop
Valley	34.55	Unnamed Tributary to Rock Creek	Intermittent						ERM Desktop
Valley	34.87	Unnamed Tributary to Rock Creek	Intermittent						Keystone Desktop
Valley	35.19	Unnamed Tributary to Rock Creek	Intermittent						ERM Desktop
Valley	35.39	Unnamed Tributary to Rock Creek	Intermittent						ERM Desktop
Valley	35.99	Unnamed Tributary to Jones Coulee	Intermittent						Keystone Unknown
Valley	37.83	Unnamed Tributary to Papoose Creek	Intermittent						Keystone Desktop
Valley	38.96	Unnamed Tributary to Rock Creek	Man Made Ditch						Keystone Unknown
Valley	39.03	Rock Creek	Perennial	Non-Salmonid	nd	nd	nd	nd	Keystone Survey
Valley	40.24	Unnamed Tributary to Willow Creek	Intermittent						ERM Desktop
Valley	40.40	Willow Creek	Perennial	Non-Salmonid	nd	nd	nd	nd	Keystone Desktop
Valley	40.72	Unnamed Tributary to Willow Creek	Intermittent						ERM Desktop
Valley	40.78	Unnamed Tributary to Willow Creek	Intermittent						Keystone Desktop
Valley	40.92	Unnamed Tributary to Willow Creek	Intermittent						ERM Desktop
Valley	41.19	Unnamed Tributary to Willow Creek	Intermittent						ERM Desktop
Valley	41.30	Unnamed Tributary to Willow Creek	Intermittent						ERM Desktop
Valley	41.57	Unnamed Tributary to Willow Creek	Intermittent						ERM Desktop
Valley	42.41	Unnamed Tributary to Willow Creek	Intermittent						ERM Desktop
Valley	43.25	Unnamed Tributary to Lime Creek	Intermittent						ERM Desktop
Valley	43.67	Unnamed Tributary to Lime Creek	Intermittent						ERM Desktop
Valley	44.11	Unnamed Tributary to Lime Creek	Intermittent						Keystone Survey
Valley	44.21	Unnamed Tributary to Lime Creek	Intermittent						ERM Desktop
Valley	44.44	Unnamed Tributary to Lime Creek	Intermittent						Keystone Desktop
Valley	45.00	Lime Creek	Intermittent						Keystone Survey
Valley	47.18	Unnamed Tributary to Lime Creek	Intermittent						ERM Desktop
Valley	47.81	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
Valley	47.90	Unnamed Tributary to Black Coulee	Intermittent						Keystone Unknown
Valley	48.14	Unnamed Tributary to Black Coulee	Intermittent						Keystone Desktop
Valley	48.20	Unnamed Tributary to Black Coulee	Intermittent						Keystone Desktop
Valley	49.14	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
Valley	49.39	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
Valley	49.62	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
Valley	49.71	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
Valley	49.71	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
Valley	49.74	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
Valley	49.77	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f] AqL	AG	DW	Rec	Source of Information [b]
Valley	49.81	Unnamed Tributary to Bear Creek	Intermittent						Keystone Desktop
Valley	51.18	Brush Fork	Intermittent						Keystone Survey
Valley	51.29	Unnamed Tributary to Brush Fork	Intermittent						ERM Desktop
Valley	51.31	Unnamed Tributary to Brush Fork	Intermittent						Keystone Desktop
Valley	51.40	Unnamed Tributary to Brush Fork	Intermittent						Keystone Desktop
Valley	51.48	Unnamed Tributary to Brush Fork	Intermittent						Keystone Desktop
Valley	52.36	Bear Creek	Intermittent						ERM Desktop
Valley	52.46	Unnamed Tributary to Bear Creek	Intermittent						Keystone Desktop
Valley	53.38	Unnamed Tributary to Buggy Creek	Intermittent						Keystone Survey
Valley	54.02	Unnamed Tributary to Buggy Creek	Intermittent						ERM Desktop
Valley	55.10	Unnamed Tributary to Buggy Creek	Intermittent						Keystone Desktop
Valley	55.34	Buggy Creek	Intermittent	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	F	F	F	ERM Desktop
Valley	55.55	Unnamed Tributary to Buggy Creek	Intermittent						ERM Desktop
Valley	56.00	Unnamed Tributary to Buggy Creek	Intermittent						Keystone Desktop
Valley	56.15	Unnamed Tributary to Buggy Creek	Intermittent						Keystone Desktop
Valley	56.29	Unnamed Tributary to Buggy Creek	Intermittent						Keystone Desktop
Valley	56.33	Unnamed Tributary to Buggy Creek	Intermittent						Keystone Desktop
Valley	56.60	Unnamed Tributary to Buggy Creek	Intermittent						ERM Desktop
Valley	57.03	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Valley	57.12	Unnamed Tributary to Alkali Coulee	Intermittent						Keystone Desktop
Valley	57.16	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Valley	57.59	Unnamed Tributary to Spring Creek	Intermittent						Keystone Desktop
Valley	57.63	Unnamed Tributary to Alkali Coulee	Intermittent						Keystone Desktop
Valley	57.79	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Valley	58.02	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Valley	58.42	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Valley	58.84	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Valley	59.38	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Valley	59.43	Unnamed Tributary to Wire Grass Coulee	Intermittent						Keystone Desktop
Valley	59.90	Spring Creek	Intermittent						Keystone Survey
Valley	61.75	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	62.78	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	63.05	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	64.41	Unnamed Tributary to Cherry Creek	Intermittent						ERM Desktop
Valley	65.51	Unnamed Tributary to Cherry Creek	Intermittent						ERM Desktop
Valley	65.78	Unnamed Tributary to Cherry Creek	Intermittent						ERM Desktop
Valley	66.01	Cherry Creek	Intermittent	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	F	F	F	F	ERM Desktop
Valley	67.11	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	67.85	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	67.89	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	67.91	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	69.06	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	69.49	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	70.04	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	71.81	East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	71.86	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop
Valley	72.29	Unnamed Tributary to East Fork Cherry Creek	Intermittent						ERM Desktop

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
Valley	73.66	Unnamed Tributary to Milk River	Intermittent						Keystone Desktop
Valley	75.22	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	75.66	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	76.55	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	77.46	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	78.58	Unnamed Tributary to Milk River	Intermittent						Keystone Desktop
Valley	78.82	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	80.16	Unnamed Tributary to Milk River	Intermittent						ERM Desktop
Valley	83.41	Milk River	Perennial	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	X	F	N	N	Keystone Survey
Valley	83.46	Ditch	Man Made Ditch						Keystone Survey
Valley	83.88	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	83.89	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	84.15	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	84.75	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	84.96	Unnamed Tributary to Milk River	Man Made Ditch						ERM Desktop
Valley	85.07	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	85.49	Canal Ditch	Man Made Ditch						Keystone Survey
Valley	87.71	Unnamed Tributary to Milk River	Intermittent						Keystone Desktop
Valley	88.36	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	88.55	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	88.57	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	88.81	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	88.84	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	89.10	Canal Ditch	Man Made Ditch						Keystone Desktop
Valley	89.30	Unnamed Tributary to Missouri River	Intermittent						Keystone Survey
Valley	89.31	Unnamed Tributary to Missouri River	Man Made Ditch						Keystone Desktop
Valley	89.42	Canal Ditch	Man Made Ditch						ERM Desktop
Valley	89.66	Missouri River	Perennial	Drinking Water; Recreation; Cold Water Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	F	F	F	Keystone Survey
McCone	93.48	Unnamed Tributary to Missouri River	Intermittent						ERM Desktop
McCone	94.02	Unnamed Tributary to West Fork Lost Creek	Intermittent						ERM Desktop
McCone	94.52	Unnamed Tributary to West Fork Lost Creek	Intermittent						ERM Desktop
McCone	94.68	West Fork Lost Creek	Intermittent						ERM Desktop
McCone	95.54	Unnamed Tributary to West Fork Lost Creek	Intermittent						ERM Desktop
McCone	95.77	Unnamed Tributary to West Fork Lost Creek	Intermittent						Keystone Survey
McCone	96.10	Unnamed Tributary to Jorgensen Coulee	Intermittent						Keystone Desktop
McCone	96.21	Unnamed Tributary to Jorgensen Coulee	Intermittent						Keystone Desktop
McCone	96.34	Unnamed Tributary to West Fork Lost Creek	Intermittent						ERM Desktop
McCone	97.21	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	97.54	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	97.58	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	97.97	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	99.53	Unnamed Tributary to West Fork Hungry Creek	Intermittent						Keystone Desktop
McCone	99.57	Unnamed Tributary to West Fork Hungry Creek	Intermittent						ERM Desktop
McCone	100.04	West Fork Hungry Creek	Intermittent						ERM Desktop
McCone	100.51	Unnamed Tributary to West Fork Hungry Creek	Intermittent						ERM Desktop
McCone	101.52	Unnamed Tributary to Cheer Creek	Intermittent						Keystone Desktop
McCone	102.30	Cheer Creek	Intermittent						ERM Desktop

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
McCone	102.35	Unnamed Tributary to Cheer Creek	Intermittent						Keystone Survey
McCone	102.93	Unnamed Tributary to Bear Creek	Intermittent						Keystone Desktop
McCone	103.38	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
McCone	103.44	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
McCone	103.83	Unnamed Tributary to Bear Creek	Intermittent						Keystone Desktop
McCone	106.26	Bear Creek	Intermittent						ERM Desktop
McCone	106.54	Unnamed Tributary to Bear Creek	Intermittent						ERM Desktop
McCone	106.96	Bear Creek	Intermittent						Keystone Desktop
McCone	107.60	Unnamed Tributary to North Prong Shade Creek	Intermittent						ERM Desktop
McCone	108.24	Unnamed Tributary to North Prong Shade Creek	Intermittent						Keystone Desktop
McCone	108.46	Unnamed Tributary to North Prong Shade Creek	Intermittent						ERM Desktop
McCone	108.85	Unnamed Tributary to North Prong Shade Creek	Intermittent						ERM Desktop
McCone	109.25	North Prong Shade Creek	Intermittent						ERM Desktop
McCone	109.91	Unnamed Tributary to North Prong Shade Creek	Intermittent						ERM Desktop
McCone	110.04	Unnamed Tributary to North Prong Shade Creek	Intermittent						ERM Desktop
McCone	111.44	Shade Creek	Intermittent						Keystone Survey
McCone	111.49	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	111.52	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	111.61	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	112.08	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	112.40	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	112.41	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	112.61	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	112.83	Unnamed Tributary to Shade Creek	Intermittent						ERM Desktop
McCone	113.09	Unnamed Tributary to Shade Creek	Intermittent						Keystone Desktop
McCone	113.13	Unnamed Tributary to Shade Creek	Intermittent						Keystone Desktop
McCone	114.75	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	115.25	South Fork Shade Creek	Intermittent						Keystone Desktop
McCone	115.66	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	115.88	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	116.33	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	116.50	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	116.83	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	117.21	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	117.58	Unnamed Tributary to South Fork Shade Creek	Intermittent						ERM Desktop
McCone	118.21	Unnamed Tributary to Ruff Creek	Intermittent						ERM Desktop
McCone	119.62	Flying V Creek	Lake/Pond						ERM Desktop
McCone	119.84	Flying V Creek	Intermittent						Keystone Desktop
McCone	119.89	Flying V Creek	Intermittent						Keystone Desktop
McCone	119.94	Unnamed Tributary to Flying V Creek	Intermittent						ERM Desktop
McCone	120.43	Unnamed Tributary to Flying V Creek	Intermittent						ERM Desktop
McCone	120.56	Unnamed Tributary to Flying V Creek	Intermittent						ERM Desktop
McCone	121.25	Unnamed Tributary to Flying V Creek	Intermittent						ERM Desktop
McCone	121.42	Unnamed Tributary to Flying V Creek	Intermittent						ERM Desktop
McCone	121.53	Unnamed Tributary to Flying V Creek	Intermittent						ERM Desktop
McCone	122.07	Unnamed Tributary to Figure Eight Creek	Intermittent						Keystone Desktop
McCone	122.60	Unnamed Tributary to Figure Eight Creek	Intermittent						ERM Desktop
McCone	123.64	Figure Eight Creek	Intermittent						Keystone Survey

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
McCone	124.38	Middle Fork Prairie Elk Creek	Intermittent	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	X	ERM Desktop
McCone	124.44	Unnamed Tributary to Middle Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	125.32	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	125.80	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	125.85	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	125.95	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	126.41	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	126.93	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	127.22	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	127.47	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						Keystone Desktop
McCone	128.03	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	128.40	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	128.95	East Fork Prairie Elk Creek	Intermittent	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	X	Keystone Survey
McCone	129.60	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	129.69	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	130.95	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	131.58	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	132.08	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	132.13	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	132.32	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	132.67	Unnamed Tributary to East Fork Prairie Elk Creek	Intermittent						ERM Desktop
McCone	134.09	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	135.07	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	135.56	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	136.60	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	137.76	Lost Creek	Intermittent						ERM Desktop
McCone	138.44	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	139.47	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	139.93	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	140.40	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	141.25	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	141.45	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	142.20	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	142.64	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	142.90	Unnamed Tributary to Lost Creek	Intermittent						ERM Desktop
McCone	144.58	Unnamed Tributary to Redwater River	Intermittent						ERM Desktop
McCone	145.03	Unnamed Tributary to Redwater River	Intermittent						ERM Desktop
McCone	147.49	Unnamed Tributary to Redwater River	Intermittent						ERM Desktop
McCone	148.52	Redwater River	Lake/Pond	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	F	Keystone Survey
McCone	150.13	Unnamed Tributary to Cup Creek	Intermittent						ERM Desktop
McCone	150.70	Unnamed Tributary to Cup Creek	Intermittent						ERM Desktop
McCone	151.68	Unnamed Tributary to Cup Creek	Intermittent						ERM Desktop

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
McCone	151.84	Cup Creek	Intermittent						ERM Desktop
McCone	154.49	Unnamed Tributary to Cottonwood Creek	Intermittent						Keystone exp Digitized
McCone	154.64	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
McCone	155.64	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
McCone	155.66	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
McCone	156.45	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	157.22	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	157.50	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	157.64	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	157.86	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	158.36	Cottonwood Creek	Intermittent						ERM Desktop
Dawson	159.32	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	159.88	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	160.24	Unnamed Tributary to Cottonwood Creek	Intermittent						ERM Desktop
Dawson	161.65	Unnamed Tributary to Berry Creek	Intermittent						ERM Desktop
Dawson	162.36	Unnamed Tributary to Berry Creek	Intermittent						ERM Desktop
Dawson	163.55	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	164.99	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	165.51	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	165.74	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	166.21	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	166.41	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	168.09	Unnamed Tributary to Timber Fork	Intermittent						Keystone Survey
Dawson	168.31	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	168.54	Unnamed Tributary to Timber Fork	Intermittent						ERM Desktop
Dawson	170.25	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	173.10	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	173.33	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	176.89	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	177.32	Clear Creek	Intermittent						Keystone Survey
Dawson	177.53	Unnamed Tributary to Clear Creek	Intermittent						Keystone Desktop
Dawson	178.36	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	178.98	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	179.29	Unnamed Tributary to Clear Creek	Intermittent						Keystone Desktop
Dawson	180.04	Unnamed Tributary to Clear Creek	Intermittent						Keystone Desktop
Dawson	180.42	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	181.59	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	181.66	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	181.71	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	182.02	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	182.29	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	182.84	Unnamed Tributary to Clear Creek	Intermittent						Keystone Desktop
Dawson	183.47	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	183.72	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	183.92	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	184.12	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	184.29	Unnamed Tributary to Clear Creek	Intermittent						ERM Desktop
Dawson	186.81	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	187.13	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
Dawson	187.28	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	187.38	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	187.62	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	187.69	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	187.73	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	188.04	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	188.05	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	190.20	Unnamed Tributary to Yellowstone River	Intermittent						Keystone Survey
Dawson	190.22	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	191.09	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	191.69	Unnamed Tributary to Yellowstone River	Intermittent						Keystone Desktop
Dawson	194.81	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	196.02	Unnamed Tributary to Yellowstone River	Man Made Ditch						ERM Desktop
Dawson	196.15	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	196.36	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	197.05	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	197.23	Unnamed Tributary to Yellowstone River	Intermittent						ERM Desktop
Dawson	197.76	Unnamed Tributary to Yellowstone River	Man Made Ditch						ERM Desktop
Dawson	197.81	Yellowstone River	Perennial	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	F	X	X	Keystone Survey
Dawson	198.43	Unnamed Tributary to Yellowstone River	Intermittent						Keystone Unknown
Prairie	199.92	Unnamed Tributary to Yellowstone River	Intermittent						Keystone Desktop
Prairie	200.25	Unnamed Tributary to Yellowstone River	Intermittent						Keystone Desktop
Prairie	200.36	Unnamed Tributary to Yellowstone River	Intermittent						Keystone Desktop
Prairie	200.43	Unnamed Tributary to Yellowstone River	Intermittent						Keystone Desktop
Prairie	201.76	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Prairie	201.88	Unnamed Tributary to Spring Creek	Intermittent						Keystone Survey
Prairie	202.47	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Prairie	202.54	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Prairie	203.64	Spring Creek	Intermittent						Keystone Desktop
Prairie	204.34	Unnamed Tributary to Spring Creek	Intermittent						Keystone Desktop
Prairie	206.49	Unnamed Tributary to Spring Creek	Intermittent						ERM Desktop
Prairie	207.24	Unnamed Tributary to Sand Butte Creek	Intermittent						ERM Desktop
Prairie	207.75	Unnamed Tributary to Sand Butte Creek	Intermittent						ERM Desktop
Prairie	209.27	Unnamed Tributary to West Fork Hay Creek	Intermittent						ERM Desktop
Prairie	209.65	Unnamed Tributary to West Fork Hay Creek	Intermittent						ERM Desktop
Prairie	210.00	West Fork Hay Creek	Intermittent						ERM Desktop
Prairie	211.00	Hay Creek	Intermittent						Keystone Survey
Prairie	211.04	Unnamed Tributary to Hay Creek	Intermittent						Keystone Desktop
Prairie	213.54	Unnamed Tributary to McNancy Creek	Intermittent						ERM Desktop
Prairie	214.21	McNaney Creek	Intermittent						ERM Desktop
Prairie	214.30	Unnamed Tributary to McNancy Creek	Intermittent						ERM Desktop
Prairie	214.95	Unnamed Tributary to McNancy Creek	Intermittent						ERM Desktop
Prairie	215.75	Unnamed Tributary to Cabin Creek	Intermittent						ERM Desktop
Prairie	216.43	Unnamed Tributary to Cabin Creek	Intermittent						ERM Desktop
Prairie	216.98	Unnamed Tributary to Cabin Creek	Intermittent						ERM Desktop
Prairie	217.30	Unnamed Tributary to Cabin Creek	Intermittent						ERM Desktop
Prairie	218.02	Unnamed Tributary to Cabin Creek	Intermittent						ERM Desktop
Prairie	218.37	Unnamed Tributary to Cabin Creek	Intermittent						ERM Desktop

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
Prairie	218.91	Unnamed Tributary to Cabin Creek	Intermittent						Keystone Desktop
Prairie	219.45	Unnamed Tributary to Cabin Creek	Intermittent						ERM Desktop
Fallon	221.98	Unnamed Tributary to Deer Creek	Intermittent						ERM Desktop
Fallon	224.10	Unnamed Tributary to Pennel Creek	Intermittent						Keystone Desktop
Fallon	226.45	Unnamed Tributary to Dry Fork Creek	Intermittent						ERM Desktop
Fallon	228.63	Lawrence Creek	Intermittent						Keystone Desktop
Fallon	228.93	Dry Fork Creek	Intermittent						Keystone Desktop
Fallon	229.37	Unnamed Tributary to Dry Fork Creek	Intermittent						ERM Desktop
Fallon	229.44	Unnamed Tributary to Dry Fork Creek	Intermittent						ERM Desktop
Fallon	229.70	Unnamed Tributary to Dry Fork Creek	Intermittent						Keystone Desktop
Fallon	230.27	Unnamed Tributary to Dry Fork Creek	Intermittent						Keystone Unknown
Fallon	230.62	Unnamed Tributary to Dry Fork Creek	Intermittent						Keystone Unknown
Fallon	233.80	Unnamed Tributary to Pennel Creek	Intermittent						Keystone Desktop
Fallon	234.75	Unnamed Tributary to Pennel Creek	Intermittent						ERM Desktop
Fallon	234.86	Unnamed Tributary to Pennel Creek	Intermittent						ERM Desktop
Fallon	235.41	Pennel Creek	Intermittent	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	F	ERM Desktop
Fallon	235.53	Unnamed Tributary to Pennel Creek	Intermittent						ERM Desktop
Fallon	237.44	Unnamed Tributary to Pennel Creek	Intermittent						ERM Desktop
Fallon	238.65	Unnamed Tributary to Pennel Creek	Intermittent						ERM Desktop
Fallon	240.95	Unnamed Tributary to Pennel Creek	Intermittent						ERM Desktop
Fallon	241.65	Unnamed Tributary to Pennel Creek	Intermittent						ERM Desktop
Fallon	243.51	Unnamed Tributary to Sandstone Creek	Lake/Pond						ERM Desktop
Fallon	243.92	Unnamed Tributary to Sandstone Creek	Intermittent						Keystone Desktop
Fallon	244.83	Unnamed Tributary to Sandstone Creek	Intermittent						Keystone Desktop
Fallon	245.08	Unnamed Tributary to Sandstone Creek	Intermittent						Keystone Desktop
Fallon	246.28	Unnamed Tributary to Sandstone Creek	Intermittent						ERM Desktop
Fallon	246.66	Unnamed Tributary to Sandstone Creek	Intermittent						ERM Desktop
Fallon	247.05	Sandstone Creek	Perennial	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	F	ERM Desktop
Fallon	247.56	Unnamed Tributary to Sandstone Creek	Intermittent						ERM Desktop
Fallon	248.93	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	248.95	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	248.95	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	248.98	Red Butte Creek	Intermittent						Keystone Survey
Fallon	249.12	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	250.44	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	252.13	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	252.95	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	253.46	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	253.87	Unnamed Tributary to Red Butte Creek	Intermittent						Keystone Unknown
Fallon	254.31	Unnamed Tributary to Red Butte Creek	Intermittent						Keystone Desktop
Fallon	254.39	Unnamed Tributary to Red Butte Creek	Intermittent						ERM Desktop
Fallon	254.84	Unnamed Tributary to Red Butte Creek	Intermittent						Keystone Desktop
Fallon	256.10	Unnamed Tributary to Little Beaver Creek	Intermittent						Keystone Survey
Fallon	256.19	Unnamed Tributary to Little Beaver Creek	Intermittent						Keystone Survey
Fallon	257.44	Unnamed Tributary to Little Beaver Creek	Intermittent						ERM Desktop

Table 1 Waterbodies Crossed by the Project in Montana

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	Use Class Description [c]	Use Attainment Assessment [d,e,f]				Source of Information [b]
					AqL	AG	DW	Rec	
Fallon	258.07	Unnamed Tributary to Little Beaver Creek	Intermittent						Keystone Survey
Fallon	260.19	Unnamed Tributary to Hidden Water Creek	Intermittent						ERM Desktop
Fallon	261.09	Hidden Water Creek	Intermittent						ERM Desktop
Fallon	261.72	Unnamed Tributary to Hidden Water Creek	Intermittent						ERM Desktop
Fallon	262.20	Unnamed Tributary to Hidden Water Creek	Intermittent						ERM Desktop
Fallon	262.24	Unnamed Tributary to Hidden Water Creek	Intermittent						Keystone Survey
Fallon	264.04	Unnamed Tributary to Little Beaver Creek	Intermittent						Keystone Desktop
Fallon	265.33	Little Beaver Creek	Perennial	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	nd	nd	nd	nd	Keystone Desktop
Fallon	265.75	Unnamed Tributary to Little Beaver Creek	Intermittent						ERM Desktop
Fallon	267.36	Unnamed Tributary to Little Beaver Creek	Intermittent						ERM Desktop
Fallon	268.57	Unnamed Tributary to Mud Creek	Intermittent						ERM Desktop
Fallon	268.63	Unnamed Tributary to Mud Creek	Intermittent						ERM Desktop
Fallon	268.81	Unnamed Tributary to Mud Creek	Intermittent						ERM Desktop
Fallon	268.87	Unnamed Tributary to Mud Creek	Intermittent						ERM Desktop
Fallon	270.11	Unnamed Tributary to Mud Creek	Intermittent						ERM Desktop
Fallon	270.36	Unnamed Tributary to Mud Creek	Intermittent						Keystone Desktop
Fallon	270.74	Unnamed Tributary to Mud Creek	Intermittent						Keystone Desktop
Fallon	271.43	Unnamed Tributary to Mud Creek	Intermittent						Keystone Desktop
Fallon	273.13	Unnamed Tributary to Soda Creek	Intermittent						Keystone Desktop
Fallon	273.88	Unnamed Tributary to Soda Creek	Intermittent						ERM Desktop
Fallon	274.60	Unnamed Tributary to Soda Creek	Intermittent						Keystone Desktop
Fallon	274.95	Unnamed Tributary to Soda Creek	Lake/Pond						ERM Desktop
Fallon	275.09	Soda Creek	Intermittent						Keystone Survey
Fallon	275.12	Unnamed Tributary to Soda Creek	Intermittent						Keystone Survey
Fallon	275.75	Unnamed Tributary to Soda Creek	Intermittent						ERM Desktop
Fallon	276.25	Unnamed Tributary to Soda Creek	Intermittent						ERM Desktop
Fallon	276.77	Sheep Creek	Intermittent						ERM Desktop
Fallon	278.08	Unnamed Tributary to North Fork Coal Bank Creek	Intermittent						Keystone Desktop
Fallon	279.04	North Fork Coal Bank Creek	Intermittent						Keystone Survey
Fallon	279.30	Unnamed Tributary to North Fork Coal Bank Creek	Intermittent						Keystone Desktop
Fallon	280.83	Unnamed Tributary to South Fork Coal Bank Creek	Intermittent						ERM Desktop
Fallon	282.23	South Fork Coal Bank Creek	Intermittent						ERM Desktop
Fallon	283.72	Unnamed Tributary to Box Elder Creek	Intermittent						ERM Desktop
Fallon	284.31	Unnamed Tributary to Box Elder Creek	Intermittent						ERM Desktop
Fallon	284.43	Unnamed Tributary to Box Elder Creek	Intermittent						ERM Desktop
Fallon	284.45	Boxelder Creek	Perennial	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	X	nd	nd	X	Keystone Survey
Fallon	284.94	Unnamed Tributary to Box Elder Creek	Intermittent						ERM Desktop

Table Notes:

a GIS data source for waterbody name is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/

b Waterbody type and source of information are based upon a hierarchy. The hierarchy is as follows: If there is only National Hydrography Dataset (NHD) then the source is ERM Desktop. If TransCanada (Keystone) data from survey or desktop does not match NHD, then source is ERM Desktop. If Keystone desktop data matches NHD, then source is Keystone Desktop. If Keystone survey data matches NHD, then source is Keystone Survey. If there is only Keystone data, then source is either Keystone Survey or Keystone Desktop. Keystone Unknown denotes Keystone-supplied data that is not sourced and is not superseded by sourced data.

c Montana 2012 Final Water Quality Integrated Report, Montana Department of Environmental Quality, Accessed on September 24, 2012

d Montana 2012 Final Water Quality Integrated Report, Montana Department of Environmental Quality, Accessed on September 24, 2012

e AqL = Aquatic Life; AG = Agriculture; DW = Drinking Water; Rec = Recreation.

f F = Full Support; P = Partial Support; N = Not Supporting; I = Insufficient Information; nd = no data; X = Not Assessed

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Keya Paha	601.07	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop
Keya Paha	601.33	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop
Keya Paha	601.85	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop
Keya Paha	602.06	Unnamed Tributary to Buffalo Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Keya Paha	602.07	Unnamed Tributary to Buffalo Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Keya Paha	602.08	Unnamed Tributary to Buffalo Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Keya Paha	604.36	Dry Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Keya Paha	605.68	Indian Creek	Intermittent			ERM Desktop
Keya Paha	606.19	Unnamed Tributary to Indian Creek	Intermittent			ERM Desktop
Keya Paha	607.41	Unnamed Tributary to Shingle Creek	Intermittent			ERM Desktop
Keya Paha	607.75	Shingle Creek	Intermittent			ERM Desktop
Keya Paha	610.55	Wolf Creek	Perennial	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Keya Paha	612.22	Unnamed Tributary to Keya Paha River	Intermittent			ERM Desktop
Keya Paha	612.47	Unnamed Tributary to Keya Paha River	Perennial			Keystone Desktop
Keya Paha	612.84	Unnamed Tributary to Keya Paha River	Intermittent			ERM Desktop
Keya Paha	613.24	Unnamed Tributary to Keya Paha River	Intermittent			ERM Desktop
Keya Paha	613.73	Spotted Tail Creek	Perennial	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Keya Paha	613.74	Unnamed Tributary to Spotted Tail Creek	Intermittent			Keystone Desktop
Keya Paha	613.79	Unnamed Tributary to Spotted Tail Creek	Intermittent			ERM Desktop
Keya Paha	613.80	Unnamed Tributary to Spotted Tail Creek	Intermittent			ERM Desktop
Keya Paha	614.10	Unnamed Tributary to Spotted Tail Creek	Perennial			Keystone Desktop
Keya Paha	614.80	Unnamed Tributary to Dry Run Creek	Intermittent			ERM Desktop
Keya Paha	615.13	Dry Run Creek	Intermittent			Keystone Desktop
Keya Paha	615.63	Unnamed Tributary to Alkali Creek	Intermittent			Keystone Desktop
Keya Paha	616.97	Alkali Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Boyd	618.11	Keya Paha River	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply; Aesthetics	Impaired; Supported; Supported; Supported	Keystone Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Boyd	621.18	Big Creek	Intermittent	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Holt	626.09	Niobrara River	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A*); Agricultural Water Supply; Aesthetics	Impaired; Supported; Supported; Supported	Keystone Desktop
Holt	626.18	Unnamed Tributary to Niobrara River	Intermittent			ERM Desktop
Holt	626.51	Unnamed Tributary to Niobrara River	Intermittent			ERM Desktop
Holt	626.86	Beaver Creek	Perennial	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	628.02	Unnamed Tributary to Niobrara River	Intermittent			ERM Desktop
Holt	629.55	Unnamed Tributary to Niobrara River	Intermittent			ERM Desktop
Holt	632.69	Big Sandy Creek	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply; Aesthetics	Not Assessed; Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	635.07	Unnamed Tributary to Big Sandy Creek	Intermittent			ERM Desktop
Holt	639.96	Unnamed Tributary to Brush Creek	Perennial	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Holt	640.28	Unnamed Tributary to Brush Creek	Perennial	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Holt	640.93	Unnamed Tributary to Brush Creek	Intermittent			Keystone Desktop
Holt	641.20	Unnamed Tributary to Brush Creek	Intermittent			Keystone Desktop
Holt	641.97	Unnamed Tributary to Brush Creek	Intermittent			Keystone Desktop
Holt	642.50	Brush Creek	Lake/Pond	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Holt	646.82	North Branch Eagle Creek	Perennial	Primary Contact Recreation; Cold Water Aquatic Life (Class B); Agricultural Water Supply; Aesthetics	Not Assessed; Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	649.30	Middle Branch Eagle Creek	Perennial	Primary Contact Recreation; Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Survey
Holt	649.75	Unnamed Tributary to Middle Branch Eagle Creek	Intermittent			ERM Desktop
Holt	650.38	Unnamed Tributary to Middle Branch Eagle Creek	Intermittent			ERM Desktop
Holt	650.69	Unnamed Tributary to Middle Branch Eagle Creek	Intermittent			ERM Desktop
Holt	652.65	Unnamed Tributary to East Branch Eagle Creek	Intermittent			Keystone Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Holt	652.79	Unnamed Tributary to East Branch Eagle Creek	Intermittent			Keystone Desktop
Holt	653.07	East Branch Eagle Creek	Perennial	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Holt	656.54	Honey Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	658.49	Unnamed Tributary to Blackbird Creek	Intermittent			ERM Desktop
Holt	658.60	Blackbird Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Holt	659.15	Unnamed Tributary to Blackbird Creek	Intermittent			ERM Desktop
Holt	659.77	Unnamed Tributary to Blackbird Creek	Intermittent			ERM Desktop
Holt	661.23	Unnamed Tributary to Redbird Creek	Intermittent			ERM Desktop
Holt	661.68	Unnamed Tributary to Redbird Creek	Intermittent			ERM Desktop
Holt	661.96	Unnamed Tributary to Redbird Creek	Intermittent			ERM Desktop
Holt	663.01	Redbird Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	663.02	Redbird Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	663.03	Redbird Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	663.71	Unnamed Tributary to Redbird Creek	Intermittent			ERM Desktop
Holt	664.55	Unnamed Tributary to Redbird Creek	Intermittent			Keystone Desktop
Holt	664.64	Unnamed Tributary to Redbird Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	672.54	Unnamed Tributary to North Branch Verdigre Creek	Intermittent			ERM Desktop
Holt	672.91	Unnamed Tributary to North Branch Verdigre Creek	Intermittent			Keystone Desktop
Holt	675.27	Middle Branch Verdigre Creek	Intermittent	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Holt	675.96	Unnamed Tributary to Middle Branch Verdigre Creek	Intermittent			Keystone Desktop
Holt	679.15	Unnamed Tributary to South Branch Verdigre Creek	Intermittent			ERM Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Holt	679.99	South Branch Verdigre Creek	Perennial	Primary Contact Recreation; Cold Water Aquatic Life (Class B); Agricultural Water Supply; Aesthetics	Not Assessed; Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Holt	680.13	Unnamed Tributary to South Branch Verdigre Creek	Intermittent			ERM Desktop
Holt	680.49	Unnamed Tributary to South Branch Verdigre Creek	Intermittent			ERM Desktop
Antelope	681.36	Unnamed Tributary to South Branch Verdigre Creek	Intermittent			ERM Desktop
Antelope	683.07	Big Springs Creek	Perennial	Cold Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Antelope	683.45	Unnamed Tributary to Big Springs Creek	Intermittent			Keystone Desktop
Antelope	684.81	Unnamed Tributary to Big Springs Creek	Intermittent			ERM Desktop
Antelope	684.92	Unnamed Tributary to Big Springs Creek	Intermittent			ERM Desktop
Antelope	685.09	Unnamed Tributary to Big Springs Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Antelope	686.88	Unnamed Tributary to Hathoway Slough	Intermittent			ERM Desktop
Antelope	687.62	Unnamed Tributary to Hathoway Slough	Intermittent			ERM Desktop
Antelope	687.86	Hathoway Slough	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Antelope	704.30	Unnamed Tributary to Willow Creek	Intermittent			ERM Desktop
Antelope	705.24	Unnamed Tributary to Al Hopkins Creek	Intermittent			Keystone Survey
Antelope	705.38	Unnamed Tributary to Al Hopkins Creek	Intermittent			Keystone Survey
Antelope	705.39	Unnamed Tributary to Willow Creek	Intermittent			ERM Desktop
Antelope	707.73	Al Hopkins Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Antelope	709.40	Unnamed Tributary to Elkhorn River	Intermittent			ERM Desktop
Antelope	711.46	Unnamed Tributary to Elkhorn River	Intermittent			ERM Desktop
Antelope	713.34	Elkhorn River	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A*); Agricultural Water Supply; Aesthetics	Impaired; Supported; Supported; Supported	Keystone Survey
Antelope	715.66	Unnamed Tributary to Elkhorn River	Intermittent			ERM Desktop
Antelope	716.48	Unnamed Tributary to Saint Clair Creek	Intermittent			ERM Desktop
Antelope	716.81	Unnamed Tributary to Saint Clair Creek	Intermittent			Keystone Desktop
Antelope	716.89	Unnamed Tributary to Saint Clair Creek	Intermittent			ERM Desktop
Antelope	717.04	Unnamed Tributary to Saint Clair Creek	Intermittent			ERM Desktop
Antelope	717.49	Unnamed Tributary to Saint Clair Creek	Intermittent			ERM Desktop
Antelope	718.54	Saint Clair Creek	Intermittent			ERM Desktop
Antelope	718.66	Unnamed Tributary to Saint Clair Creek	Intermittent			Keystone Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Antelope	718.73	Unnamed Tributary to Saint Clair Creek	Intermittent			Keystone Desktop
Antelope	720.28	Unnamed Tributary to Ives Creek	Intermittent			Keystone Desktop
Antelope	720.86	Unnamed Tributary to Ives Creek	Intermittent			Keystone Desktop
Antelope	721.52	Unnamed Tributary to Ives Creek	Intermittent			Keystone Desktop
Antelope	721.65	Unnamed Tributary to Ives Creek	Intermittent			ERM Desktop
Antelope	721.71	Unnamed Tributary to Ives Creek	Intermittent			ERM Desktop
Antelope	722.39	Ives Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	ERM Desktop
Antelope	722.39	Unnamed Tributary to Ives Creek	Intermittent			ERM Desktop
Antelope	723.48	Unnamed Tributary to Ives Creek	Intermittent			ERM Desktop
Antelope	723.58	Unnamed Tributary to Ives Creek	Intermittent			ERM Desktop
Boone	724.65	Unnamed Tributary to North Shell Creek	Intermittent			ERM Desktop
Boone	725.20	North Shell Creek	Intermittent			Keystone Survey
Boone	726.05	Unnamed Tributary to North Shell Creek	Intermittent			ERM Desktop
Boone	726.65	Unnamed Tributary to North Shell Creek	Intermittent			ERM Desktop
Boone	726.76	Unnamed Tributary to North Shell Creek	Intermittent			ERM Desktop
Boone	727.59	Unnamed Tributary to North Shell Creek	Intermittent			ERM Desktop
Boone	727.82	Unnamed Tributary to North Shell Creek	Intermittent			ERM Desktop
Boone	730.18	Unnamed Tributary to Shell Creek	Intermittent			ERM Desktop
Boone	731.08	Shell Creek	Intermittent			ERM Desktop
Boone	731.25	Unnamed Tributary to Shell Creek	Intermittent			Keystone Survey
Boone	731.37	Unnamed Tributary to Shell Creek	Intermittent			ERM Desktop
Boone	731.68	Unnamed Tributary to Shell Creek	Intermittent			ERM Desktop
Boone	733.07	Unnamed Tributary to Shell Creek	Intermittent			ERM Desktop
Boone	735.69	Unnamed Tributary to Vorhees Creek	Intermittent			ERM Desktop
Boone	736.10	Unnamed Tributary to Vorhees Creek	Intermittent			Keystone Desktop
Boone	737.33	Vorhees Creek	Intermittent			Keystone Desktop
Boone	738.21	Unnamed Tributary to Vorhees Creek	Intermittent			ERM Desktop
Boone	738.56	Unnamed Tributary to Vorhees Creek	Intermittent			ERM Desktop
Boone	738.98	Unnamed Tributary to Vorhees Creek	Intermittent			ERM Desktop
Boone	739.27	Unnamed Tributary to Vorhees Creek	Intermittent			ERM Desktop
Boone	740.04	Unnamed Tributary to Vorhees Creek	Intermittent			ERM Desktop
Boone	740.22	Vorhees Creek	Intermittent			Keystone Survey
	740.38	Vorhees Creek	Intermittent			Keystone Survey
Boone	741.24	Unnamed Tributary to Vorhees Creek	Intermittent			ERM Desktop
Boone	743.77	Beaver Creek	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply - Class A; Aesthetics	Impaired; Impaired; Supported; Supported	Keystone Survey
Boone	744.40	Unnamed Tributary to Beaver Creek	Intermittent			Keystone Survey
Boone	744.45	Unnamed Tributary to Beaver Creek	Intermittent			Keystone Survey
Boone	744.91	Unnamed Tributary to Beaver Creek	Intermittent			ERM Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Boone	745.08	Unnamed Tributary to Beaver Creek	Intermittent			ERM Desktop
Boone	746.15	Unnamed Tributary to Beaver Creek	Intermittent			ERM Desktop
Boone	748.58	Bogus Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Survey
Boone	748.77	Unnamed Tributary to Bogus Creek	Intermittent			Keystone Survey
Boone	749.30	Unnamed Tributary to Bogus Creek	Intermittent			ERM Desktop
Boone	749.64	Unnamed Tributary to Bogus Creek	Intermittent			Keystone Desktop
Boone	749.99	Unnamed Tributary to Bogus Creek	Intermittent			Keystone Desktop
Boone	750.39	Unnamed Tributary to Bogus Creek	Intermittent			ERM Desktop
Boone	750.43	Unnamed Tributary to Bogus Creek	Intermittent			Keystone Desktop
Boone	750.59	Unnamed Tributary to Bogus Creek	Intermittent			ERM Desktop
Nance	753.10	Unnamed Tributary to Skeedee Creek	Intermittent			ERM Desktop
Nance	759.62	Plum Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Not Assessed; Not Assessed; Not Assessed	Keystone Desktop
Nance	760.12	Unnamed Tributary to Plum Creek	Intermittent			Keystone Desktop
Nance	761.67	Loup River	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply - Class A; Aesthetics	Impaired; Supported; Supported; Supported	Keystone Desktop
Nance	761.80	Unnamed Tributary to Loup River	Intermittent			Keystone Desktop
Nance	761.89	Unnamed Tributary to Loup River	Lake/Pond			ERM Desktop
Nance	762.00	Unnamed Tributary to Loup River	Intermittent			Keystone Desktop
Nance	762.21	Unnamed Tributary to Loup River	Intermittent			Keystone Desktop
Nance	762.82	Unnamed Tributary to Loup River	Intermittent			Keystone Desktop
Nance	763.48	Unnamed Tributary to Loup River	Intermittent			Keystone Desktop
Nance	763.66	Unnamed Tributary to Loup River	Intermittent			Keystone Desktop
Nance	764.05	Unnamed Tributary to Loup River	Intermittent			ERM Desktop
Nance	765.32	Unnamed Tributary to Prairie Creek	Intermittent			ERM Desktop
Nance	765.65	Unnamed Tributary to Prairie Creek	Intermittent			ERM Desktop
Nance	766.48	Unnamed Tributary to Prairie Creek	Intermittent			ERM Desktop
Nance	766.65	Prairie Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply- Class A; Aesthetics	Impaired; Supported; Supported	Keystone Desktop
Merrick	770.05	Unnamed Tributary to Silver Creek	Intermittent			ERM Desktop
Merrick	770.24	Unnamed Tributary to Silver Creek	Intermittent			ERM Desktop
Merrick	771.53	Silver Creek	Intermittent			ERM Desktop
Merrick	771.76	Unnamed Tributary to Silver Creek	Intermittent			ERM Desktop
Merrick	772.25	Unnamed Tributary to Silver Creek	Intermittent			ERM Desktop
Merrick	772.49	Unnamed Tributary to Silver Creek	Intermittent			ERM Desktop
Merrick	773.35	Unnamed Tributary to Silver Creek	Intermittent			ERM Desktop
Merrick	773.58	Unnamed Tributary to Silver Creek	Intermittent			ERM Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Merrick	773.89	Unnamed Tributary to Silver Creek	Intermittent			Keystone Desktop
Polk	775.14	Platte River	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A*); Agricultural Water Supply - Class A; Aesthetics	Supported; Supported; Supported; Supported	Keystone Desktop
Polk	776.10	Unnamed Tributary to Platte River	Intermittent			ERM Desktop
Polk	777.29	Unnamed Tributary to Platte River	Intermittent			ERM Desktop
Polk	784.69	Unnamed Tributary to Prairie Creek	Intermittent			ERM Desktop
Polk	785.58	Prairie Creek	Intermittent			ERM Desktop
Polk	788.91	Big Blue River	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Impaired; Supported; Supported	ERM Desktop
York	790.60	Unnamed Tributary to Big Blue River	Intermittent			ERM Desktop
York	791.97	Coon Branch	Intermittent			ERM Desktop
York	792.71		Intermittent			Keystone Desktop
York	793.07		Intermittent			Keystone Desktop
York	795.08	Unnamed Tributary to Lincoln Creek	Intermittent			ERM Desktop
York	796.05	Unnamed Tributary to Lincoln Creek	Intermittent			ERM Desktop
York	798.09	Lincoln Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Impaired; Not Assessed; Not Assessed	ERM Desktop
York	799.03	Unnamed Tributary to Lincoln Creek	Intermittent			ERM Desktop
York	801.18	Unnamed Tributary to Beaver Creek	Intermittent			ERM Desktop
York	803.35	Beaver Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Impaired; Not Assessed; Not Assessed	Keystone Survey
York	803.79	Unnamed Tributary to Beaver Creek	Intermittent			ERM Desktop
York	805.25		Man Made Ditch			Keystone Survey
York	805.62		Man Made Ditch			Keystone Survey
York	806.21	Unnamed	Man Made Ditch			Keystone Survey
York	807.19	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
York	807.46	Unnamed Reservoir	Unknown Reservoir			ERM Desktop
York	807.86	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
York	808.41	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
York	809.41	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
York	809.51	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Survey
York	810.58	Unnamed Tributary to West Fork Big Blue River	Intermittent			Keystone Survey

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
York	811.39	Unnamed Tributary to West Fork Big Blue River	Intermittent			Keystone Desktop
York	812.19	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
York	812.83	West Fork Big Blue River	Perennial	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply - Class A; Aesthetics	Impaired; Impaired; Supported; Supported	Keystone Survey
York	813.10	Unnamed Tributary to West Fork Big Blue River	Intermittent			Keystone Desktop
York	813.11	Unnamed Lake/Pond	Lake/Pond			ERM Desktop
York	813.74	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
York	814.55	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
York	815.25	Unnamed Tributary to West Fork Big Blue River	Intermittent			ERM Desktop
Fillmore	818.31	Indian Creek	Intermittent			Keystone Survey
Fillmore	818.94	Unnamed Tributary to Indian Creek	Intermittent			ERM Desktop
Fillmore	819.85	Unnamed Tributary to Indian Creek	Intermittent			ERM Desktop
Fillmore	819.86	Unnamed Tributary to Indian Creek	Intermittent			ERM Desktop
Fillmore	822.68	Unnamed Tributary to Indian Creek	Man Made Ditch			Keystone Survey
Fillmore	824.79	Unnamed Tributary to Turkey Creek	Man Made Ditch			Keystone Desktop
Fillmore	825.81	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	825.99	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	826.00	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	826.23	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	827.71	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	828.41	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	829.62	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	830.56	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	830.77	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Fillmore	831.79	Turkey Creek	Perennial	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Supported; Not Assessed; Not Assessed	Keystone Survey
Fillmore	832.15	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Saline	832.82	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Saline	833.33	Unnamed Tributary to Turkey Creek	Intermittent			Keystone Survey
Saline	835.32	Unnamed Tributary to Turkey Creek	Intermittent			ERM Desktop
Saline	836.43	Unnamed Tributary to North Fork Swan Creek	Intermittent			ERM Desktop
Saline	836.85	Unnamed Tributary to North Fork Swan Creek	Intermittent			ERM Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Saline	836.90	Unnamed Tributary to North Fork Swan Creek	Intermittent			ERM Desktop
Saline	837.46	Unnamed Tributary to North Fork Swan Creek	Intermittent			ERM Desktop
Saline	838.13	Unnamed Tributary to North Fork Swan Creek	Intermittent			ERM Desktop
Saline	838.38	Unnamed Tributary to North Fork Swan Creek	Intermittent			Keystone Survey
Saline	838.59	Unnamed Tributary to North Fork Swan Creek	Intermittent			Keystone Desktop
Saline	839.60	Unnamed Tributary to North Fork Swan Creek	Intermittent			ERM Desktop
Saline	840.33	Unnamed Tributary to North Fork Swan Creek	Intermittent			Keystone Desktop
Saline	840.72	Unnamed Tributary to South Fork Swan Creek	Intermittent			Keystone Desktop
Saline	842.60	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Saline	844.77	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Saline	846.25	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	847.83	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	848.38	South Fork Swan Creek	Intermittent	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Supported; Not Assessed; Not Assessed	ERM Desktop
Jefferson	848.98	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	849.44	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	849.75	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	849.76	Unnamed Pond	Pond			Keystone Desktop
Jefferson	850.51	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	851.82	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	853.05	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	853.32	Unnamed Tributary to South Fork Swan Creek	Intermittent			ERM Desktop
Jefferson	855.17	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	856.02	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop

Table 2 Waterbodies Crossed by the Project in Nebraska

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Jefferson	856.55	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	856.57	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	857.05	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	857.74	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	858.12	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	859.13	Cub Creek	Intermittent	Warm Water Aquatic Life (Class A); Agricultural Water Supply - Class A; Aesthetics	Supported; Not Assessed; Not Assessed	ERM Desktop
Jefferson	860.16	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	860.78	Unnamed Tributary to Cub Creek	Intermittent			Keystone Survey
Jefferson	861.29	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	861.37	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	862.45	Unnamed Tributary to Cub Creek	Intermittent			Keystone Desktop
Jefferson	862.60	Unnamed Tributary to Cub Creek	Intermittent			ERM Desktop
Jefferson	863.82	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	864.42	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	864.84	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	865.15	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	865.49	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	866.85	Big Indian Creek	Intermittent			ERM Desktop
Jefferson	867.38	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	868.44	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	868.82	Unnamed Tributary to Big Indian Creek	Intermittent			Keystone Desktop
Jefferson	871.14	Unnamed Tributary to Big Indian Creek	Man Made Ditch			Keystone Desktop
Jefferson	871.16	Unnamed Tributary to Big Indian Creek	Man Made Ditch			Keystone Desktop
Jefferson	871.65	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	872.22	Unnamed Tributary to Big Indian Creek	Man Made Ditch			Keystone Desktop
Jefferson	872.48	Unnamed Tributary to Big Indian Creek	Intermittent			Keystone Desktop
Jefferson	872.75	Unnamed Tributary to Big Indian Creek	Intermittent			ERM Desktop
Jefferson	873.52	Unnamed Tributary to Little Blue River	Intermittent			Keystone Survey
Jefferson	873.66	Unnamed Tributary to Little Blue River	Intermittent			Keystone Survey
Jefferson	874.16	Unnamed Tributary to Little Blue River	Intermittent			ERM Desktop
Jefferson	874.28	Unnamed Tributary to Little Blue River	Intermittent			ERM Desktop
Jefferson	875.13	Unnamed Tributary to Little Blue River	Intermittent			Keystone Survey

Table Notes:

a GIS data source for waterbody name is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

b Waterbody type and source of information are based upon a hierarchy. The hierarchy is as follows: If there is only National Hydrography Dataset (NHD) then the source is ERM Desktop. If Keystone data from survey or desktop does not match NHD, then source is ERM Desktop. If Keystone desktop data matches NHD, then source is Keystone Desktop. If Keystone survey data matches NHD, then source is Keystone Survey. If there is only Keystone data, then source is either Keystone Survey or Keystone Desktop. Waterbody type is only classified into "intermittent" or "perennial" because NDEQ does not recognize "ephemeral" as a stream classification.

c Data source is Title 117 - Nebraska Surface Water Quality Standards, Nebraska Administrative Code, Nebraska Department of Environmental Quality, Revised Effective Date: April 1, 2012.

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Harding	286.62	Unnamed Tributary to Box Elder Creek	Intermittent			ERM Desktop
Harding	292.64	Shaw Creek	Perennial			ERM Desktop
Harding	293.60	Unnamed Tributary to Little Missouri River	Intermittent			ERM Desktop
Harding	295.04	Little Missouri River	Perennial	Fish/Wildlife Prop, Rec, Stock; Irrigation Waters; Limited Contact Recreation; Warmwater Semipermanent Fish Life	Full; Full; Full; Non	Keystone Survey
Harding	295.40	Unnamed Tributary to Little Missouri River	Intermittent			ERM Desktop
Harding	296.62	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	296.89	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	297.27	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	297.65	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	297.83	Unnamed Tributary to Kimble Creek	Intermittent			Keystone Desktop
Harding	297.89	Unnamed Tributary to Kimble Creek	Intermittent			Keystone Desktop
Harding	298.23	Unnamed Tributary to Kimble Creek	Intermittent			Keystone Desktop
Harding	298.41	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	298.87	Unnamed Tributary to Kimble Creek	Intermittent			Keystone Desktop
Harding	299.16	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	299.43	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	299.58	Unnamed Tributary to Kimble Creek	Intermittent			ERM Desktop
Harding	300.01	Unnamed Tributary to Kimble Creek	Intermittent			Keystone Survey
Harding	300.38	Kimble Creek	Perennial			ERM Desktop
Harding	302.96	Unnamed Tributary to Dry House Creek	Intermittent			ERM Desktop
Harding	303.16	Unnamed Tributary to Dry House Creek	Intermittent			Keystone Desktop
Harding	303.45	Unnamed Tributary to Dry House Creek	Perennial			ERM Desktop
Harding	304.79	Unnamed Tributary to Jones Creek	Intermittent			Keystone Desktop
Harding	305.19	Unnamed Tributary to Jones Creek	Intermittent			ERM Desktop
Harding	306.30	Unnamed Tributary to Jones Creek	Intermittent			Keystone Desktop
Harding	306.99	Unnamed Tributary to Jones Creek	Intermittent			Keystone Desktop
Harding	307.23	Unnamed Tributary to Jones Creek	Intermittent			Keystone Desktop
Harding	307.79	Unnamed Tributary to Jones Creek	Intermittent			Keystone Desktop
Harding	309.12	Unnamed Tributary to Jones Creek	Intermittent			Keystone Desktop
Harding	309.69	Unnamed Tributary to Jones Creek	Intermittent			ERM Desktop
Harding	311.24	Unnamed Tributary to Rush Creek	Intermittent			Keystone Desktop
Harding	311.32	Unnamed Tributary to Rush Creek	Intermittent			ERM Desktop
Harding	311.73	Unnamed Tributary to Rush Creek	Intermittent			ERM Desktop
Harding	312.70	Unnamed Tributary to Rush Creek	Intermittent			Keystone Survey
Harding	315.68	Unnamed Tributary to Rush Creek	Intermittent			ERM Desktop
Harding	316.24	Unnamed Tributary to Rush Creek	Intermittent			ERM Desktop
Harding	317.27	Unnamed Tributary to Rush Creek	Intermittent			ERM Desktop
Harding	318.16	Slick Creek	Intermittent			ERM Desktop
Harding	319.36	Unnamed Tributary to Slick Creek	Intermittent			ERM Desktop
Harding	320.06	Slick Creek	Intermittent			ERM Desktop
Harding	320.63	Unnamed Tributary to Slick Creek	Intermittent			ERM Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Harding	321.37	Unnamed Tributary to South Fork Grand River	Intermittent			Keystone Desktop
Harding	321.60	South Fork Grand River	Perennial	Fish/Wildlife Prop, Rec, Stock; Irrigation Waters; Limited Contact Recreation; Warmwater Semipermanent Fish Life	Full; Non; Full; Full	Keystone Survey
Harding	321.64	Unnamed Tributary to South Fork Grand River	Intermittent			Keystone Desktop
Harding	326.38	Clarks Fork Creek	Perennial	Warmwater Marginal Fish Life Propagation Waters, Limited Contact Recreation Waters	Not Assessed	Keystone Survey
Harding	327.95	Unnamed Tributary to Clarks Fork Creek	Intermittent			ERM Desktop
Harding	328.48	Unnamed Tributary to Clarks Fork Creek	Intermittent			ERM Desktop
Harding	332.25	West Squaw Creek	Intermittent			Keystone Desktop
Harding	332.39	Double X Creek	Intermittent			ERM Desktop
Harding	332.68	Unnamed Tributary to Double X Creek	Intermittent			ERM Desktop
Harding	333.95	Unnamed Tributary to Double X Creek	Intermittent			ERM Desktop
Harding	335.47	Unnamed Tributary to Double X Creek	Intermittent			ERM Desktop
Harding	337.37	Unnamed Tributary to Wolf Creek	Intermittent			ERM Desktop
Harding	338.78	Unnamed Tributary to Wolf Creek	Intermittent			Keystone Survey
Harding	339.20	Wolf Creek	Intermittent			Keystone Survey
Harding	340.78	Unnamed Tributary to Wolf Creek	Intermittent			Keystone Survey
Harding	343.06	Red Butte Creek	Intermittent			Keystone Desktop
Harding	344.02	Giannonatti Creek	Intermittent			Keystone Desktop
Harding	345.18	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	346.80	Little Cowboy Creek	Intermittent			ERM Desktop
Harding	347.11	Unnamed Tributary to Little Cowboy Creek	Intermittent			ERM Desktop
Harding	347.95	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	348.09	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	348.81	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	350.96	Unnamed Tributary to Spring Creek	Intermittent			ERM Desktop
Harding	351.77	Spring Creek	Intermittent			ERM Desktop
Harding	352.13	Unnamed Tributary to Spring Creek	Intermittent			ERM Desktop
Harding	352.39	Unnamed Tributary to Spring Creek	Intermittent			Keystone Desktop
Harding	352.89	Unnamed Tributary to Spring Creek	Intermittent			ERM Desktop
Harding	353.38	Unnamed Tributary to Spring Creek	Intermittent			ERM Desktop
Harding	353.68	Unnamed Tributary to Spring Creek	Intermittent			Keystone Desktop
Harding	354.90	Dry Creek	Intermittent			Keystone Desktop
Harding	355.48	Unnamed Tributary to Dry Creek	Intermittent			ERM Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Harding	356.19	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	356.33	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	357.14	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	357.99	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Harding	358.07	Unnamed Tributary to North Fork Moreau River	Intermittent			Keystone Desktop
Butte	359.14	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Butte	359.60	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Butte	360.99	North Fork Moreau River	Perennial	Warmwater Marginal Fish Life Propagation Waters, Limited Contact Recreation Waters	Not Assessed	Keystone Survey
Butte	361.61	Unnamed Tributary to North Fork Moreau River	Intermittent			Keystone Survey
Butte	361.97	Unnamed Tributary to North Fork Moreau River	Intermittent			Keystone Desktop
Perkins	363.48	Unnamed Tributary to North Fork Moreau River	Intermittent			Keystone Desktop
Perkins	363.65	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Perkins	363.67	Unnamed Tributary to North Fork Moreau River	Intermittent			ERM Desktop
Perkins	365.63	Unnamed Tributary to South Fork Moreau River	Intermittent			ERM Desktop
Perkins	366.34	Unnamed Tributary to South Fork Moreau River	Intermittent			ERM Desktop
	367.23	Unnamed Tributary to South Fork Moreau River	Intermittent			Keystone Desktop
Perkins	368.24	Unnamed Tributary to South Fork Moreau River	Intermittent			ERM Desktop
Perkins	368.91	South Fork Moreau River	Perennial	Fish/Wildlife Prop, Rec, Stock; Irrigation Waters; Limited Contact Recreation; Warmwater Marginal Fish Life	Non; Non; Full; Full	Keystone Survey
Perkins	370.57	Beverly Creek	Intermittent			ERM Desktop
Perkins	372.52	Unnamed Tributary to Beverly Creek	Intermittent			ERM Desktop
Meade	377.66	Unnamed Tributary to Big Cedar Creek	Intermittent			ERM Desktop
Meade	378.17	Unnamed Tributary to Big Cedar Creek	Intermittent			Keystone Desktop
Meade	378.45	Unnamed Tributary to Big Cedar Creek	Intermittent			ERM Desktop
Meade	378.88	Unnamed Tributary to Big Cedar Creek	Intermittent			Keystone Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Meade	379.45	Unnamed Tributary to Big Cedar Creek	Intermittent			ERM Desktop
Meade	380.13	Unnamed Tributary to West Branch Pine Creek	Intermittent			Keystone Desktop
Meade	380.77	Unnamed Tributary to West Branch Pine Creek	Intermittent			ERM Desktop
Meade	383.17	West Branch Pine Creek	Intermittent			Keystone Survey
Meade	387.83	Pine Creek	Perennial	Warmwater Marginal Fish Life Propagation Waters, Limited Contact Recreation Waters	Not Assessed	ERM Desktop
Meade	388.09	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	388.56	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	389.40	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	390.47	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	390.50	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	390.52	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	395.73	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	396.34	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	396.57	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	397.24	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	397.90	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	398.05	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	398.51	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	398.82	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	398.98	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	399.08	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	399.73	Unnamed Tributary to Pine Creek	Intermittent			ERM Desktop
Meade	399.90	Unnamed Tributary to Pine Creek	Intermittent			Keystone Desktop
Meade	400.05	Unnamed Tributary to Pine Creek	Intermittent			Keystone Desktop
Meade	400.25	Unnamed Tributary to Pine Creek	Intermittent			Keystone Desktop
Meade	400.93	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	401.22	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	401.66	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	401.99	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	402.21	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	402.77	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	403.35	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	404.07	Sulphur Creek	Intermittent			ERM Desktop
Meade	404.52	Unnamed Tributary to Sulphur Creek	Intermittent			ERM Desktop
Meade	410.07	Unnamed Tributary to Cherry Creek	Intermittent			ERM Desktop
Meade	410.92	Unnamed Tributary to Cherry Creek	Intermittent			Keystone Survey
Meade	411.24	Unnamed Tributary to Cherry Creek	Intermittent			ERM Desktop
Meade	411.92	Unnamed Tributary to Cherry Creek	Intermittent			Keystone Survey
Meade	412.80	Unnamed Tributary to Red Owl Creek	Intermittent			Keystone Desktop
Meade	413.05	Cherry Creek	Intermittent			ERM Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Meade	413.81	Unnamed Tributary to Cherry Creek	Intermittent			ERM Desktop
Meade	423.87	Narcelle Creek	Intermittent			Keystone Desktop
Meade	424.04	West Branch Narcelle Creek	Intermittent			ERM Desktop
Meade	424.45	Unnamed Tributary to Narcelle Creek	Intermittent			ERM Desktop
Meade	425.47	Unnamed Tributary to Narcelle Creek	Intermittent			Keystone Desktop
Meade	426.32	Unnamed Tributary to Narcelle Creek	Intermittent			ERM Desktop
Meade	427.15	Unnamed Tributary to Narcelle Creek	Intermittent			ERM Desktop
Meade	427.73	Unnamed Tributary to Narcelle Creek	Intermittent			ERM Desktop
Meade	428.05	Narcelle Creek	Intermittent			ERM Desktop
Meade	428.12	Narcelle Creek	Perennial			Keystone Desktop
Meade	428.19	Unnamed Tributary to Narcelle Creek	Intermittent			ERM Desktop
Meade	428.21	Unnamed Tributary to Narcelle Creek	Intermittent			ERM Desktop
Meade	429.16	Negro Creek	Intermittent			Keystone Desktop
Meade	429.63	Narcelle Creek	Intermittent			ERM Desktop
Meade	429.95	Cheyenne River Side Channel	Intermittent			ERM Desktop
Meade	430.06	Cheyenne River	Perennial	Fish/Wildlife Prop, Rec, Stock; Immersion Recreation; Irrigation Waters; Limited Contact Recreation; Warmwater Permanent Fish Life	Full; Non; Full; Non; Non	Keystone Desktop
Pennington	430.20	Cheyenne River Side Channel	Intermittent			ERM Desktop
Pennington	430.35	Cheyenne River Side Channel	Intermittent			ERM Desktop
Pennington	430.83	Ash Creek	Intermittent			Keystone Desktop
Haakon	433.58	Bridger Creek	Intermittent			ERM Desktop
Haakon	440.43	Unnamed Tributary to Bridger Creek	Intermittent			ERM Desktop
Haakon	441.34	Unnamed Tributary to Bridger Creek	Intermittent			ERM Desktop
Haakon	441.81	Unnamed Tributary to Bridger Creek	Intermittent			ERM Desktop
Haakon	441.99	Unnamed Tributary to Bridger Creek	Intermittent			ERM Desktop
Haakon	442.59	Unnamed Tributary to Bridger Creek	Intermittent			ERM Desktop
Haakon	443.12	Unnamed Tributary to Bridger Creek	Intermittent			ERM Desktop
Haakon	445.77	Unnamed Tributary to West Plum Creek	Intermittent			Keystone Desktop
Haakon	448.34	West Plum Creek	Intermittent			ERM Desktop
Haakon	448.45	Unnamed Tributary to West Plum Creek	Intermittent			Keystone Desktop
Haakon	449.67	Unnamed Tributary to West Plum Creek	Intermittent			Keystone Desktop
Haakon	452.87	Unnamed Tributary to West Plum Creek	Intermittent			ERM Desktop
Haakon	454.48	Unnamed Tributary to West Plum Creek	Intermittent			ERM Desktop
Haakon	455.34	Unnamed Tributary to West Plum Creek	Intermittent			ERM Desktop
Haakon	455.45	Unnamed Tributary to West Plum Creek	Intermittent			ERM Desktop
Haakon	456.15	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Haakon	456.60	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Haakon	457.12	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop
Haakon	459.62	Unnamed Tributary to Buzzard Creek	Intermittent			Keystone Desktop
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop
Haakon	461.99	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop
Haakon	462.57	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop
Haakon	463.14	Unnamed Tributary to Buzzard Creek	Intermittent			ERM Desktop
Haakon	463.84	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	464.12	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	464.27	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Perennial/LakePond			ERM Desktop
Haakon	465.32	Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	465.33	Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	465.35	Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	466.76	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	466.94	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	467.51	Unnamed Tributary to Witcher Holes Creek	Intermittent			ERM Desktop
Haakon	469.16	Unnamed Tributary to Sarah Laribee Creek	Intermittent			ERM Desktop
Haakon	469.18	Unnamed Tributary to Sarah Laribee Creek	Intermittent			ERM Desktop
Haakon	469.39	Sarah Laribee Creek	Perennial/LakePond			ERM Desktop
Haakon	469.40	Unnamed Tributary to Sarah Laribee Creek	Perennial/LakePond			ERM Desktop
Haakon	470.22	Unnamed Tributary to Sarah Laribee Creek	Intermittent			ERM Desktop
Haakon	470.96	Unnamed Tributary to Nowlin Creek	Intermittent			ERM Desktop
Haakon	472.82	Nowlin Creek	Intermittent			Keystone Desktop
Haakon	473.66	Unnamed Tributary to Nowlin Creek	Intermittent			ERM Desktop
Haakon	473.88	Unnamed Tributary to Nowlin Creek	Intermittent			ERM Desktop
Haakon	475.17	Mud Creek	Intermittent			ERM Desktop
Haakon	475.34	Unnamed Tributary to Mud Creek	Intermittent			ERM Desktop
Haakon	477.11	Jack Dailey Creek	Intermittent			ERM Desktop
Haakon	478.65	Unnamed Tributary to Jack Dailey Creek	Intermittent			Keystone Desktop
Haakon	479.19	Unnamed Tributary to Jack Dailey Creek	Intermittent			ERM Desktop
Haakon	479.91	Unnamed Tributary to Jack Dailey Creek	Intermittent			ERM Desktop
Haakon	483.70	Mitchell Creek	Intermittent			ERM Desktop
Haakon	485.29	Unnamed Tributary to Bad River	Intermittent			ERM Desktop
Haakon	485.32	Unnamed Tributary to Bad River	Intermittent			ERM Desktop
Haakon	485.96	Bad River	Perennial	Warmwater Marginal Fish Life Propagation Waters, Limited Contact Recreation Waters	Not Assessed	Keystone Survey
Haakon	486.37	Unnamed Tributary to Bad River	Intermittent			ERM Desktop
Haakon	487.34	Unnamed Tributary to Bad River	Intermittent			Keystone Desktop
Haakon	487.44	Unnamed Tributary to Bad River	Perennial/LakePond			ERM Desktop
Jones	490.10	Unnamed Tributary to South Creek	Intermittent			Keystone Desktop
Jones	491.14	South Creek	Intermittent			ERM Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Jones	491.26	Unnamed Tributary to South Creek	Intermittent			ERM Desktop
Jones	492.62	Unnamed Tributary to South Creek	Intermittent			ERM Desktop
Jones	492.67	Unnamed Tributary to South Creek	Intermittent			Keystone Desktop
Jones	492.84	Unnamed Tributary to South Creek	Intermittent			Keystone Desktop
Jones	493.44	Unnamed Tributary to South Creek	Intermittent			ERM Desktop
Jones	493.74	Unnamed Tributary to South Creek	Intermittent			ERM Desktop
Jones	494.75	Unnamed Tributary to South Creek	Intermittent			ERM Desktop
Jones	496.63	Unnamed Tributary to Dry Creek	Intermittent			Keystone Survey
Jones	496.85	Unnamed Tributary to Dry Creek	Intermittent			Keystone Desktop
Jones	497.21	Unnamed Tributary to Dry Creek	Intermittent			ERM Desktop
Jones	498.33	Dry Creek	Perennial			Keystone Survey
Jones	499.11	Unnamed Tributary to Dry Creek	Intermittent			ERM Desktop
Jones	501.22	Unnamed Tributary to Dry Creek	Intermittent			Keystone Desktop
Jones	501.83	Unnamed Tributary to Dry Creek	Intermittent			ERM Desktop
Jones	502.39	Unnamed Tributary to Dry Creek	Intermittent			ERM Desktop
Jones	503.35	Unnamed Tributary to Dry Creek	Intermittent			ERM Desktop
Jones	503.57	Unnamed Tributary to Dry Creek	Intermittent			ERM Desktop
Jones	505.37	Unnamed Tributary to White Clay Creek	Intermittent			ERM Desktop
Jones	506.17	White Clay Creek	Intermittent			Keystone Survey
Jones	506.83	Unnamed Tributary to White Clay Creek	Intermittent			ERM Desktop
Jones	507.37	Unnamed Tributary to White Clay Creek	Intermittent			ERM Desktop
Jones	508.07	Unnamed Tributary to White Clay Creek	Intermittent			ERM Desktop
Jones	509.07	Unnamed Tributary to White Clay Creek	Intermittent			ERM Desktop
Jones	509.88	Unnamed Tributary to White Clay Creek	Intermittent			Keystone Survey
Jones	509.89	Unnamed Tributary to White Clay Creek	Intermittent			Keystone Survey
Jones	509.90	Unnamed Tributary to White Clay Creek	Intermittent			Keystone Survey
Jones	510.03	Unnamed Tributary to White Clay Creek	Intermittent			ERM Desktop
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Intermittent			ERM Desktop
Jones	511.25	East Branch White Clay Creek	Intermittent			ERM Desktop
Jones	511.33	Unnamed Tributary to East Branch White Clay Creek	Intermittent			Keystone Desktop
Jones	512.29	Unnamed Tributary to East Branch White Clay Creek	Intermittent			ERM Desktop
Jones	512.99	Unnamed Tributary to East Branch White Clay Creek	Intermittent			ERM Desktop
Jones	516.69	Unnamed Tributary to Medicine Creek	Intermittent			ERM Desktop
Jones	517.45	Unnamed Tributary to Bull Creek	Intermittent			Keystone Desktop
Jones	518.09	Unnamed Tributary to Bull Creek	Intermittent			Keystone Desktop
Jones	518.68	Unnamed Tributary to Bull Creek	Intermittent			Keystone Desktop
Jones	518.90	Unnamed Tributary to Bull Creek	Intermittent			ERM Desktop
Jones	518.94	Unnamed Tributary to Bull Creek	Intermittent			Keystone Desktop
Jones	519.52	Unnamed Tributary to Bull Creek	Intermittent			Keystone Desktop
Jones	521.73	Unnamed Tributary to Medicine Creek	Intermittent			Keystone Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Jones	522.56	Unnamed Tributary to Medicine Creek	Intermittent			ERM Desktop
Jones	523.27	Unnamed Tributary to Williams Creek	Intermittent			ERM Desktop
Jones	523.69	Unnamed Tributary to Williams Creek	Intermittent			Keystone Desktop
Jones	524.42	Unnamed Tributary to Williams Creek	Intermittent			ERM Desktop
Jones	524.87	Williams Creek	Intermittent	Fish/Wildlife Prop, Rec, Stock; Irrigation Waters	Ins; Ins	ERM Desktop
Jones	525.26	Unnamed Tributary to Williams Creek	Intermittent			ERM Desktop
Jones	526.60	Unnamed Tributary to Williams Creek	Intermittent			Keystone Desktop
Jones	527.99	Unnamed Tributary to Williams Creek	Intermittent			Keystone Desktop
Jones	528.04	Unnamed Tributary to Williams Creek	Intermittent			Keystone Desktop
Jones	528.07	Unnamed Tributary to Williams Creek	Intermittent			Keystone Desktop
Lyman	529.52	Unnamed Tributary to Williams Creek	Intermittent			ERM Desktop
Lyman	529.92	Unnamed Tributary to Williams Creek	Intermittent			ERM Desktop
Lyman	534.39	Sedlano Creek	Intermittent			Keystone Survey
Lyman	535.19	Unnamed Tributary to Sedlano Creek	Intermittent			Keystone Desktop
Lyman	537.48	Unnamed Tributary to Sedlano Creek	Intermittent			Keystone Desktop
Lyman	537.59	Unnamed Tributary to Sedlano Creek	Intermittent			ERM Desktop
Lyman	540.31	Unnamed Tributary to White River	Intermittent			Keystone Unknown Source
Lyman	540.54	Unnamed Tributary to White River	Intermittent			Keystone Unknown Source
Lyman	540.76	Unnamed Tributary to White River	Intermittent			Keystone Unknown Source
Tripp	541.31	White River	Perennial	Fish/Wildlife Prop, Rec, Stock; Irrigation Waters; Limited Contact Recreation; Warmwater Semipermanent Fish Life	Full; Full; Non; Full	Keystone Survey
Tripp	543.25	Unnamed Tributary to Little Dog Creek	Intermittent			ERM Desktop
Tripp	543.52	Little Dog Creek	Intermittent			ERM Desktop
Tripp	543.67	Unnamed Tributary to Little Dog Creek	Intermittent			ERM Desktop
Tripp	544.60	Unnamed Tributary to Little Dog Creek	Intermittent			ERM Desktop
Tripp	545.70	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Tripp	546.13	Unnamed Tributary to Cottonwood Creek	Intermittent			Keystone Desktop
Tripp	546.56	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Tripp	546.76	Unnamed Tributary to Cottonwood Creek	Intermittent			Keystone Desktop
Tripp	547.31	Cottonwood Creek	Perennial			ERM Desktop
Tripp	548.98	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Tripp	549.49	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Tripp	550.20	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Tripp	550.87	Unnamed Tributary to Cottonwood Creek	Intermittent			ERM Desktop
Tripp	551.38	Unnamed Tributary to Owl Creek	Intermittent			ERM Desktop
Tripp	551.55	Unnamed Tributary to Owl Creek	Intermittent			ERM Desktop
Tripp	552.35	Unnamed Tributary to Owl Creek	Intermittent			Keystone Desktop
Tripp	552.49	Unnamed Tributary to Owl Creek	Intermittent			Keystone Desktop
Tripp	553.87	Unnamed Tributary to Owl Creek	Intermittent			Keystone Desktop
Tripp	554.43	Unnamed Tributary to Owl Creek	Intermittent			ERM Desktop
Tripp	555.68	Unnamed Tributary to Owl Creek	Intermittent			ERM Desktop

Table 3 Waterbodies Crossed by the Project in South Dakota

County	Approximate Milepost	Waterbody Name [a]	Waterbody Type [b]	State Water Quality Classification [c]	Supports Use Designation [c]	Source of Information [b]
Tripp	555.87	Unnamed Tributary to Owl Creek	Intermittent			ERM Desktop
Tripp	557.59	Unnamed Tributary to Owl Creek	Intermittent			ERM Desktop
Tripp	561.73	Unnamed Tributary to Owl Creek	Intermittent			ERM Desktop
Tripp	564.63	Hollow Creek	Intermittent			Keystone Desktop
Tripp	564.83	Unnamed Tributary to Hollow Creek	Intermittent			ERM Desktop
Tripp	565.03	Unnamed Tributary to Hollow Creek	Intermittent			ERM Desktop
Tripp	566.25	Unnamed Tributary to Dog Ear Creek	Intermittent			ERM Desktop
Tripp	567.04	Unnamed Tributary to Dog Ear Creek	Intermittent			ERM Desktop
Tripp	567.53	Unnamed Tributary to Dog Ear Creek	Intermittent			ERM Desktop
Tripp	567.63	Unnamed Tributary to Dog Ear Creek	Intermittent			ERM Desktop
Tripp	569.87	Unnamed Tributary to Dog Ear Creek	Intermittent			ERM Desktop
Tripp	570.17	Dog Ear Creek	Intermittent			Keystone Survey
Tripp	570.62	Mud Creek	Intermittent			Keystone Survey
Tripp	572.03	Unnamed Tributary to Mud Creek	Intermittent			ERM Desktop
Tripp	572.49	Unnamed Tributary to Mud Creek	Intermittent			ERM Desktop
Tripp	576.95	Sand Creek	Intermittent			Keystone Desktop
Tripp	580.89	Ponca Creek	Intermittent			ERM Desktop
Tripp	581.02	Unnamed Tributary to Ponca Creek	Intermittent			ERM Desktop
Tripp	581.07	Ponca Creek	Intermittent			Keystone Survey
Tripp	584.33	Unnamed Tributary to Ponca Creek	Intermittent			ERM Desktop
Tripp	584.48	Unnamed Tributary to Ponca Creek	Intermittent			ERM Desktop
Tripp	585.35	Unnamed Tributary to Ponca Creek	Intermittent			ERM Desktop
Tripp	592.75	Unnamed Tributary to Lute Creek	Intermittent			ERM Desktop
Tripp	593.45	Unnamed Tributary to Lute Creek	Intermittent			ERM Desktop
Tripp	595.35	Lute Creek	Intermittent			Keystone Survey
Tripp	596.40	Unnamed Tributary to Lute Creek	Intermittent			Keystone Desktop
Tripp	597.08	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop
Tripp	597.22	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop
Tripp	597.45	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop
Tripp	597.68	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop
Tripp	598.62	Unnamed Tributary to Buffalo Creek	Intermittent			ERM Desktop
Tripp	599.11	Unnamed Tributary to Buffalo Creek	Intermittent			ERM Desktop
Tripp	600.02	Buffalo Creek	Perennial			ERM Desktop
Tripp	600.87	Unnamed Tributary to Buffalo Creek	Intermittent			Keystone Desktop

Table Notes:

a GIS data source for waterbody name is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

b Waterbody type and source of information are based upon a hierarchy. The hierarchy is as follows: If there is only National Hydrography Dataset (NHD) then the source is ERM Desktop. If Keystone data from survey or desktop does not match NHD, then source is ERM Desktop. If Keystone desktop data matches NHD, then source is Keystone Desktop. If Keystone survey data matches NHD, then source is Keystone Survey. If there is only Keystone data, then source is either Keystone Survey or Keystone Desktop. Keystone Unknown Source denotes Keystone-supplied data that is not sourced and not superseded by other data sources. Waterbody type is only classified into "intermittent" or "perennial" due to the constraints associated with making "ephemeral" stream classifications in this desktop review and to maintain consitancy with analysis for other waterbodies in this project.

c Data source is The 2012 South Dakota Integrated Report for Surface Water Quality Assessment prepared by the South Dakota Department of Environment and Natural Resources (DENR) pursuant to Sections 305(b), 303(d), and 314 of the Federal Water Pollution Control Act (P.L. 95-217).

Table 4 Impaired Waterbodies Crossed by the Project in Montana

Waterbody Name [a]	Use Class Description [b]	Use Attainment Assessment [c,d,e]				Parameters of Concern [b]
		AqL	AG	DW	Rec	
Middle Fork Prairie Elk Creek	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	X	Alteration in stream-side or littoral vegetative covers, Nitrogen (Total), Phosphorus (Total), Physical substrate habitat alterations, Total Kjehldahl Nitrogen (TKN)
East Fork Prairie Elk Creek	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	X	Alteration in stream-side or littoral vegetative covers, Nitrogen (Total), Phosphorus (Total), Physical substrate habitat alterations, Total Kjehldahl Nitrogen (TKN)
Missouri River	Drinking Water; Recreation; Cold Water Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	F	F	F	Alteration in stream-side or littoral vegetative covers, Other flow regime alterations, Temperature, water
Frenchman River	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	P	F	P	Alteration in stream-side or littoral, vegetative covers, Chlorophyll-a, Low flow alterations
Milk River	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	X	F	N	N	Escherichia coli, Lead, Mercury
Yellowstone River	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	F	X	X	Fish-Passage Barrier
Buggy Creek	Drinking Water; Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial	P	F	F	F	Iron
Sandstone Creek	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	F	Nitrate/Nitrite (Nitrite + Nitrate as N), Nitrogen (Total)
Pennel Creek	Recreation; Warm Water Non-Salmonid Fishes and associated Aquatic Life; Agricultural/Industrial; Degradation Prohibited	P	nd	nd	F	Total Dissolved Solids

Table Notes:

a GIS data source for waterbody name is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

b Montana 2012 Final Water Quality Integrated Report, Montana Department of Environmental Quality, Accessed on September 24, 2012, http://cwaic.mt.gov/wqrep/2012/2012Final_IR_Master.pdf, http://cwaic.mt.gov/wq_reps.aspx?yr=2012qryId=94544.

c Montana 2012 Final Water Quality Integrated Report, Montana Department of Environmental Quality, Accessed on September 24, 2012.

d AqL = Aquatic Life; AG = Agriculture; DW = Drinking Water; Rec = Recreation.

e F = Full Support; P = Partial Support; N = Not Supporting; I = Insufficient Information; nd = no data; X = Not Assessed.

Table 5 Impaired Waterbodies Crossed by the Project in Nebraska

Waterbody Name [a]	Designated Use [b]	Use Support/Attainment [b,c]	Impairment [c]
Keya Paha River	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply; Aesthetics	Impaired; Supported; Supported; Supported	Recreation - Bacteria
Niobrara River	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply; Aesthetics	Impaired; Supported; Supported; Supported	Recreation - Bacteria
Elkhorn River	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply; Aesthetics	Impaired; Supported; Supported; Supported	Recreation- Bacteria
Beaver Creek	Primary Contact Recreation; Warm Water Aquatic Life(Class A); Agricultural Water Supply - Class A; Aesthetics	Impaired; Impaired; Supported; Supported	Recreation- Bacteria
Loup River	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply - Class A; Aesthetics	Impaired; Supported; Supported; Supported	Recreation - Bacteria
Prairie Creek	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Impaired; Supported; Supported	Aquatic life - DO
Big Blue River	Warm Water Aquatic Life(Class B); Agricultural Water Supply - Class A; Aesthetics	Impaired; Supported; Supported	Aquatic life - DO, atrazine
Lincoln Creek	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Impaired; Not Assessed; Not Assessed	Aquatic life - impaired aquatic community
Beaver Creek	Warm Water Aquatic Life (Class B); Agricultural Water Supply - Class A; Aesthetics	Impaired; Not Assessed; Not Assessed	Aquatic life - impaired aquatic community
West Fork Big Blue River	Primary Contact Recreation; Warm Water Aquatic Life (Class A); Agricultural Water Supply - Class A; Aesthetics	Impaired; Impaired; Supported; Supported	Recreation - bacteria, aquatic life - May - June - atrazine, impaired aquatic community

Table Notes:

a GIS data source for waterbody name is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

b Data source is Title 117 - Nebraska Surface Water Quality Standards, Nebraska Administrative Code, Nebraska Department of Environmental Quality, Revised Effective Date: April 1, 2012.

c 2012 Water Quality Integrated Report, Nebraska Department of Environmental Quality, Water Quality Division, April 1, 2012.

Table 6 Impaired Waterbodies Crossed by the Project in South Dakota

Waterbody Name [a]	Designated Use [b]	Use Support [b]	Cause [b]
Little Missouri River	Fish/Wildlife Propagation, Recreation; Stock; Irrigation Waters; Limited Contact Recreation; Warm water Semi permanent Fish Life	Full; Full; Full; Non	Not Assessed; Not Assessed; Not Assessed; Total Suspended Solids
South Fork Grand River	Fish/Wildlife Propagation, Recreation; Stock; Irrigation Waters; Limited Contact Recreation; Warm water Semi permanent Fish Life	Full; Non; Full; Full	Not Assessed; Salinity & Specific Conductance; Not Assessed; Not Assessed
South Fork Moreau River	Fish/Wildlife Propagation, Recreation; Stock; Irrigation Waters; Limited Contact Recreation; Warm water Marginal Fish Life	Non; Non; Full; Full	Not Assessed; Total Dissolved Solids, Specific Conductance; Not Assessed; Not Assessed
Cheyenne River	Fish/Wildlife Propagation, Recreation; Stock; Immersion Recreation; Irrigation Waters; Limited Contact Recreation; Warm water Permanent Fish Life	Full; Non; Full; Non; Non	Not Assessed, Escherichia Coli & Fecal Coliform, Not Assessed, Escherichia Coli & Fecal Coliform, Total Suspended Solids
White River	Fish/Wildlife Propagation, Recreation; Stock; Irrigation Waters; Limited Contact Recreation; Warm water Semi permanent Fish Life	Full; Full; Non; Full	Not Assessed, Not Assessed, Escherichia Coli

Table Notes:

a GIS data source for waterbody name is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

b Data source is The 2012 South Dakota Integrated Report for Surface Water Quality Assessment prepared by the South Dakota Department of Environment and Natural Resources (DENR) pursuant to Sections 305(b), 303(d), and 314 of the Federal Water Pollution Control Act (P.L. 95-217). Full = Fully of Supporting Designated Use, Non = Non of Supporting Designated Use.

Table 7 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Montana

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Phillips	1.11	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	2.30
Phillips	2.81	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.34
Phillips	5.45	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	1.99
Phillips	5.94	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	1.87
Phillips	5.94	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	4.01
Phillips	6.51	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.36
Phillips	6.51	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	13.93
Phillips	9.05	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.31
Phillips	9.05	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.41
Phillips	9.05	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.08
Phillips	9.05	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	6.99
Phillips	9.12	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	6.99
Phillips	9.12	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.41
Phillips	9.12	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.31
Phillips	9.12	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.08
Phillips	9.59	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.21
Phillips	9.59	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	3.15
Phillips	9.59	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	2.79
Phillips	9.59	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.41
Phillips	9.59	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.31
Phillips	9.59	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.08
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.48
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.10
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.64
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.35
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.30
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.09
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Schmittou Reservoir	1.71
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	2.53
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.04
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.13
Phillips	10.37	Unnamed Tributary to East Fork Whitewater Creek	Salsbery Reservoir	16.70
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.48
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.64
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.35
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.30
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.09
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Schmittou Reservoir	1.71
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	2.53
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.04
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Unnamed	0.13
Phillips	10.72	Unnamed Tributary to East Fork Whitewater Creek	Salsbery Reservoir	16.70
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.13
Phillips	11.26	East Fork Whitewater Creek	Unnamed	2.15
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.48
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.64
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.35
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.30

Table 7 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Montana

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.09
Phillips	11.26	East Fork Whitewater Creek	Schmittou Reservoir	1.71
Phillips	11.26	East Fork Whitewater Creek	Unnamed	2.53
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.04
Phillips	11.26	East Fork Whitewater Creek	Unnamed	0.13
Phillips	11.26	East Fork Whitewater Creek	Salsbery Reservoir	16.70
Phillips	11.67	Unnamed Tributary to Cottonwood Creek	Unnamed	1.42
Phillips	14.64	Unnamed Tributary to Cottonwood Creek	Unnamed	4.31
Phillips	15.17	Unnamed Tributary to Cottonwood Creek	Unnamed	6.66
Phillips	16.96	Unnamed Tributary to Cottonwood Creek	Unnamed	0.49
Phillips	17.89	Unnamed Tributary to Frenchman River	Unnamed	2.46
Phillips	17.92	Unnamed Tributary to Frenchman River	Unnamed	2.46
Phillips	18.09	Unnamed Tributary to Frenchman River	Unnamed	2.46
Phillips	18.35	Unnamed Tributary to Frenchman River	Unnamed	2.46
Phillips	18.98	Unnamed Tributary to Frenchman River	Unnamed	0.18
Phillips	19.18	Unnamed Tributary to Frenchman River	Unnamed	0.18
Phillips	22.15	Unnamed Tributary to Frenchman River	Unnamed	0.95
Phillips	22.32	Unnamed Tributary to Frenchman River	Unnamed	0.95
Valley	26.80	Unnamed Tributary to Frenchman River	Unnamed	1.92
Valley	26.80	Unnamed Tributary to Frenchman River	Unnamed	2.16
Valley	26.92	Unnamed Tributary to Frenchman River	Unnamed	5.55
Valley	26.92	Unnamed Tributary to Frenchman River	Unnamed	1.92
Valley	26.92	Unnamed Tributary to Frenchman River	Unnamed	2.16
Valley	27.02	Unnamed Tributary to Frenchman River	Unnamed	5.55
Valley	27.02	Unnamed Tributary to Frenchman River	Unnamed	1.92
Valley	27.02	Unnamed Tributary to Frenchman River	Unnamed	2.16
Valley	28.66	Unnamed Tributary to Frenchman River	Unnamed	2.47
Valley	32.26	Unnamed Tributary to East Fork Cash Creek	Unnamed	3.43
Valley	32.32	East Fork Cash Creek	Unnamed	3.43
Valley	32.49	Unnamed Tributary to East Fork Cash Creek	Unnamed	3.43
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.39
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.09
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.14
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	4.04
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	10.64
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.09
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.21
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.10
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.08
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	1.88
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.22
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.19
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.58
Valley	33.01	Unnamed Tributary to Papoose Creek	Unnamed	0.04
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.39
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.09
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.14
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	4.04
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	10.64

Table 7 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Montana

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.09
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.21
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.10
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.08
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	1.88
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.22
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.19
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.58
Valley	33.08	Unnamed Tributary to Papoose Creek	Unnamed	0.04
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.39
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.09
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.14
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	4.04
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	10.64
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.09
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.21
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.10
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.08
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	1.88
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.22
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.19
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.58
Valley	33.68	Unnamed Tributary to Papoose Creek	Unnamed	0.04
Valley	37.83	Unnamed Tributary to Papoose Creek	Unnamed	0.55
Valley	43.25	Unnamed Tributary to Lime Creek	Unnamed	0.26
Valley	43.25	Unnamed Tributary to Lime Creek	Unnamed	80.36
Valley	44.11	Unnamed Tributary to Lime Creek	Unnamed	2.64
Valley	44.21	Unnamed Tributary to Lime Creek	Unnamed	2.64
Valley	44.44	Unnamed Tributary to Lime Creek	Unnamed	2.64
Valley	47.18	Unnamed Tributary to Lime Creek	Unnamed	2.28
Valley	47.18	Unnamed Tributary to Lime Creek	Unnamed	0.04
Valley	47.18	Unnamed Tributary to Lime Creek	Unnamed	0.12
Valley	47.18	Unnamed Tributary to Lime Creek	Unnamed	0.60
Valley	47.81	Unnamed Tributary to Bear Creek	Unnamed	7.54
Valley	47.81	Unnamed Tributary to Bear Creek	Unnamed	2.08
Valley	49.83	Unnamed Tributary to Bear Creek	Unnamed	1.25
Valley	49.83	Unnamed Tributary to Bear Creek	Reservoir No. Four	7.80
Valley	59.38	Unnamed Tributary to Spring Creek	Unnamed	1.74
Valley	59.38	Unnamed Tributary to Spring Creek	Unnamed	1.74
Valley	59.90	Spring Creek	Unnamed	0.12
Valley	61.75	Unnamed Tributary to Milk River	Unnamed	0.10
Valley	61.75	Unnamed Tributary to Milk River	Unnamed	0.56
Valley	61.75	Unnamed Tributary to Milk River	Unnamed	0.14
Valley	61.75	Unnamed Tributary to Milk River	Unnamed	0.24
Valley	62.78	Unnamed Tributary to Milk River	Unnamed	0.56
Valley	62.78	Unnamed Tributary to Milk River	Unnamed	0.24
Valley	63.05	Unnamed Tributary to Milk River	Unnamed	1.97
Valley	63.05	Unnamed Tributary to Milk River	Unnamed	0.56
Valley	63.05	Unnamed Tributary to Milk River	Unnamed	0.24

Table 7 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Montana

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Valley	64.41	Unnamed Tributary to Cherry Creek	Unnamed	0.74
Valley	64.41	Unnamed Tributary to Cherry Creek	Unnamed	0.74
Valley	64.41	Unnamed Tributary to Cherry Creek	Unnamed	0.74
Valley	65.51	Unnamed Tributary to Cherry Creek	Unnamed	0.25
Valley	65.51	Unnamed Tributary to Cherry Creek	Unnamed	0.58
Valley	65.51	Unnamed Tributary to Cherry Creek	Unnamed	0.25
Valley	65.51	Unnamed Tributary to Cherry Creek	Unnamed	0.25
Valley	65.78	Unnamed Tributary to Cherry Creek	Unnamed	0.19
Valley	65.78	Unnamed Tributary to Cherry Creek	Unnamed	0.58
Valley	65.78	Unnamed Tributary to Cherry Creek	Unnamed	0.19
Valley	65.78	Unnamed Tributary to Cherry Creek	Unnamed	0.19
Valley	69.06	Unnamed Tributary to East Fork Cherry Creek	Unnamed	0.37
Valley	69.49	Unnamed Tributary to East Fork Cherry Creek	Unnamed	0.37
Valley	70.04	Unnamed Tributary to East Fork Cherry Creek	Unnamed	0.37
Valley	71.81	East Fork Cherry Creek	Unnamed	0.37
Valley	71.86	Unnamed Tributary to East Fork Cherry Creek	Unnamed	0.37
Valley	72.29	Unnamed Tributary to East Fork Cherry Creek	Unnamed	0.37
Valley	73.66	Unnamed Tributary to Milk River	Unnamed	0.85
Valley	75.66	Unnamed Tributary to Milk River	Unnamed	3.60
Valley	80.16	Unnamed Tributary to Milk River	Unnamed	0.64
McCone	93.48	Unnamed Tributary to Missouri River	Unnamed	0.93
McCone	94.52	Unnamed Tributary to West Fork Lost Creek	Unnamed	0.25
McCone	94.52	Unnamed Tributary to West Fork Lost Creek	Unnamed	1.07
McCone	94.52	Unnamed Tributary to West Fork Lost Creek	Unnamed	1.12
McCone	94.52	Unnamed Tributary to West Fork Lost Creek	Unnamed	1.07
McCone	94.68	West Fork Lost Creek	Unnamed	0.21
McCone	94.68	West Fork Lost Creek	Unnamed	2.08
McCone	94.68	West Fork Lost Creek	Unnamed	1.12
McCone	94.68	West Fork Lost Creek	Unnamed	0.21
McCone	95.54	Unnamed Tributary to West Fork Lost Creek	Unnamed	1.07
McCone	95.54	Unnamed Tributary to West Fork Lost Creek	Unnamed	0.21
McCone	95.77	Unnamed Tributary to West Fork Lost Creek	Unnamed	1.07
McCone	95.77	Unnamed Tributary to West Fork Lost Creek	Unnamed	0.21
McCone	103.38	Unnamed Tributary to Bear Creek	Unnamed	0.70
McCone	103.44	Unnamed Tributary to Bear Creek	Unnamed	0.70
McCone	106.26	Bear Creek	Unnamed	3.43
McCone	106.54	Unnamed Tributary to Bear Creek	Unnamed	3.43
McCone	108.46	Unnamed Tributary to North Prong Shade Creek	Unnamed	5.78
McCone	108.85	Unnamed Tributary to North Prong Shade Creek	Unnamed	5.78
McCone	111.52	Unnamed Tributary to Shade Creek	Unnamed	1.18
McCone	111.61	Unnamed Tributary to Shade Creek	Unnamed	1.18
McCone	114.75	Unnamed Tributary to South Fork Shade Creek	Christianson	8.10
McCone	116.33	Unnamed Tributary to South Fork Shade Creek	Unnamed	9.29
McCone	117.21	Unnamed Tributary to South Fork Shade Creek	Unnamed	0.71
McCone	117.58	Unnamed Tributary to South Fork Shade Creek	Unnamed	0.47
McCone	117.58	Unnamed Tributary to South Fork Shade Creek	Unnamed	0.71
McCone	118.21	Unnamed Tributary to Ruff Creek	Unnamed	0.68
McCone	119.62	Flying V Creek	Unnamed	1.26
McCone	119.94	Unnamed Tributary to Flying V Creek	Unnamed	3.63
McCone	120.43	Unnamed Tributary to Flying V Creek	Unnamed	3.63

Table 7 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Montana

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
McCone	120.56	Unnamed Tributary to Flying V Creek	Unnamed	0.60
McCone	120.56	Unnamed Tributary to Flying V Creek	Unnamed	0.16
McCone	121.42	Unnamed Tributary to Flying V Creek	Unnamed	3.34
McCone	121.42	Unnamed Tributary to Flying V Creek	Unnamed	0.16
McCone	121.42	Unnamed Tributary to Flying V Creek	Unnamed	3.34
McCone	121.53	Unnamed Tributary to Flying V Creek	Unnamed	1.89
McCone	121.53	Unnamed Tributary to Flying V Creek	Unnamed	0.16
McCone	121.53	Unnamed Tributary to Flying V Creek	Unnamed	1.89
McCone	122.60	Unnamed Tributary to Figure Eight Creek	Unnamed	1.68
McCone	122.60	Unnamed Tributary to Figure Eight Creek	Unnamed	2.13
McCone	125.80	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	2.42
McCone	125.85	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	2.42
McCone	125.95	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	2.42
McCone	126.41	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.03
McCone	126.41	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.18
McCone	126.41	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.06
McCone	132.08	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.11
McCone	132.08	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.14
McCone	132.08	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.12
McCone	132.13	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.11
McCone	132.13	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.14
McCone	132.13	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.12
McCone	132.32	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.11
McCone	132.32	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.14
McCone	132.32	Unnamed Tributary to East Fork Prairie Elk Creek	Unnamed	0.12
McCone	134.09	Unnamed Tributary to Lost Creek	Unnamed	1.20
McCone	134.09	Unnamed Tributary to Lost Creek	Haynie Reservoir	8.19
McCone	134.09	Unnamed Tributary to Lost Creek	Unnamed	1.59
McCone	134.09	Unnamed Tributary to Lost Creek	Unnamed	0.57
McCone	134.09	Unnamed Tributary to Lost Creek	Unnamed	0.55
McCone	135.07	Unnamed Tributary to Lost Creek	Unnamed	1.59
McCone	135.56	Unnamed Tributary to Lost Creek	Unnamed	0.57
McCone	136.60	Unnamed Tributary to Lost Creek	Unnamed	0.56
McCone	142.64	Unnamed Tributary to Lost Creek	Unnamed	1.25
McCone	144.58	Unnamed Tributary to Redwater River	Unnamed	0.99
McCone	144.58	Unnamed Tributary to Redwater River	Unnamed	0.35
McCone	148.52	Redwater River	Unnamed	0.66
McCone	154.64	Unnamed Tributary to Cottonwood Creek	Unnamed	0.31
McCone	156.45	Unnamed Tributary to Cottonwood Creek	Unnamed	1.09
Dawson	163.55	Unnamed Tributary to Timber Fork	Unnamed	1.92
Dawson	165.51	Unnamed Tributary to Timber Fork	Unnamed	3.71
Dawson	165.74	Unnamed Tributary to Timber Fork	Unnamed	3.71
Dawson	168.09	Unnamed Tributary to Timber Fork	Lindsay Reservoir	31.65
Dawson	168.09	Unnamed Tributary to Timber Fork	Unnamed	1.76
Dawson	168.31	Unnamed Tributary to Timber Fork	Lindsay Reservoir	31.65
Dawson	168.31	Unnamed Tributary to Timber Fork	Unnamed	1.76
Dawson	168.54	Unnamed Tributary to Timber Fork	Lindsay Reservoir	31.65
Dawson	168.54	Unnamed Tributary to Timber Fork	Unnamed	1.76
Dawson	176.89	Unnamed Tributary to Clear Creek	Unnamed	0.43
Dawson	176.89	Unnamed Tributary to Clear Creek	Unnamed	9.86

Table 7 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Montana

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Dawson	176.89	Unnamed Tributary to Clear Creek	Unnamed	0.15
Dawson	179.29	Unnamed Tributary to Clear Creek	Unnamed	0.57
Dawson	186.81	Unnamed Tributary to Yellowstone River	Unnamed	0.19
Dawson	187.13	Unnamed Tributary to Yellowstone River	Unnamed	0.19
Dawson	187.28	Unnamed Tributary to Yellowstone River	Unnamed	0.19
Dawson	187.38	Unnamed Tributary to Yellowstone River	Unnamed	0.19
Dawson	187.62	Unnamed Tributary to Yellowstone River	Unnamed	0.19
Dawson	187.69	Unnamed Tributary to Yellowstone River	Unnamed	0.19
Dawson	187.73	Unnamed Tributary to Yellowstone River	Unnamed	0.19
Dawson	191.09	Unnamed Tributary to Yellowstone River	Unnamed	0.17
Dawson	191.69	Unnamed Tributary to Yellowstone River	Unnamed	0.17
Prairie	207.24	Unnamed Tributary to Sand Butte Creek	Unnamed	0.65
Prairie	207.75	Unnamed Tributary to Sand Butte Creek	Unnamed	0.65
Prairie	213.54	Unnamed Tributary to McNancy Creek	Unnamed	1.66
Prairie	213.54	Unnamed Tributary to McNancy Creek	Unnamed	0.14
Prairie	213.54	Unnamed Tributary to McNancy Creek	Unnamed	0.12
Prairie	215.75	Unnamed Tributary to Cabin Creek	Unnamed	0.28
Fallon	221.98	Unnamed Tributary to Deer Creek	Unnamed	0.34
Fallon	228.63	Lawrence Creek	Unnamed	0.28
Fallon	228.63	Lawrence Creek	Unnamed	4.76
Fallon	228.63	Lawrence Creek	Unnamed	2.31
Fallon	228.93	Dry Fork Creek	Unnamed	0.28
Fallon	228.93	Dry Fork Creek	Unnamed	4.76
Fallon	228.93	Dry Fork Creek	Unnamed	2.31
Fallon	230.27	Unnamed Tributary to Dry Fork Creek	Unnamed	0.62
Fallon	230.62	Unnamed Tributary to Dry Fork Creek	Unnamed	0.62
Fallon	233.80	Unnamed Tributary to Pennel Creek	Unnamed	0.09
Fallon	233.80	Unnamed Tributary to Pennel Creek	Unnamed	0.24
Fallon	233.80	Unnamed Tributary to Pennel Creek	Unnamed	0.25
Fallon	233.80	Unnamed Tributary to Pennel Creek	Unnamed	3.64
Fallon	234.75	Unnamed Tributary to Pennel Creek	Unnamed	0.09
Fallon	234.75	Unnamed Tributary to Pennel Creek	Unnamed	0.24
Fallon	234.86	Unnamed Tributary to Pennel Creek	Unnamed	0.09
Fallon	234.86	Unnamed Tributary to Pennel Creek	Unnamed	0.24
Fallon	235.41	Pennel Creek	Unnamed	0.09
Fallon	235.41	Pennel Creek	Unnamed	0.24
Fallon	235.53	Unnamed Tributary to Pennel Creek	Unnamed	0.09
Fallon	235.53	Unnamed Tributary to Pennel Creek	Unnamed	0.24
Fallon	243.51	Unnamed Tributary to Sandstone Creek	Unnamed	1.93
Fallon	243.51	Unnamed Tributary to Sandstone Creek	Unnamed	0.91
Fallon	243.51	Unnamed Tributary to Sandstone Creek	Unnamed	4.79
Fallon	243.51	Unnamed Tributary to Sandstone Creek	Unnamed	8.26
Fallon	248.93	Unnamed Tributary to Red Butte Creek	Unnamed	0.17
Fallon	248.93	Unnamed Tributary to Red Butte Creek	Unnamed	49.85
Fallon	248.95	Unnamed Tributary to Red Butte Creek	Unnamed	0.17
Fallon	248.95	Unnamed Tributary to Red Butte Creek	Unnamed	49.85
Fallon	248.95	Unnamed Tributary to Red Butte Creek	Unnamed	0.17
Fallon	248.95	Unnamed Tributary to Red Butte Creek	Unnamed	49.85
Fallon	248.98	Red Butte Creek	Unnamed	0.17
Fallon	248.98	Red Butte Creek	Unnamed	49.85

Table 7 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Montana

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Fallon	249.12	Unnamed Tributary to Red Butte Creek	Unnamed	0.17
Fallon	249.12	Unnamed Tributary to Red Butte Creek	Unnamed	49.85
Fallon	252.95	Unnamed Tributary to Red Butte Creek	Unnamed	1.89
Fallon	257.44	Unnamed Tributary to Little Beaver Creek	Unnamed	4.18
Fallon	257.44	Unnamed Tributary to Little Beaver Creek	Unnamed	10.57
Fallon	257.44	Unnamed Tributary to Little Beaver Creek	Unnamed	1.68
Fallon	257.44	Unnamed Tributary to Little Beaver Creek	Unnamed	2.90
Fallon	257.44	Unnamed Tributary to Little Beaver Creek	Unnamed	1.15
Fallon	258.07	Unnamed Tributary to Little Beaver Creek	Unnamed	2.90
Fallon	258.07	Unnamed Tributary to Little Beaver Creek	Unnamed	1.15
Fallon	270.36	Unnamed Tributary to Mud Creek	Unnamed	7.01
Fallon	270.36	Unnamed Tributary to Mud Creek	Unnamed	7.01
Fallon	270.74	Unnamed Tributary to Mud Creek	Unnamed	7.01
Fallon	271.43	Unnamed Tributary to Mud Creek	Unnamed	0.83
Fallon	271.43	Unnamed Tributary to Mud Creek	Unnamed	0.62
Fallon	271.43	Unnamed Tributary to Mud Creek	Unnamed	2.93
Fallon	274.95	Unnamed Tributary to Soda Creek	Unnamed	0.98
Fallon	275.09	Soda Creek	Unnamed	0.57
Fallon	275.12	Unnamed Tributary to Soda Creek	Unnamed	0.57
Fallon	275.75	Unnamed Tributary to Soda Creek	Unnamed	0.22
Fallon	275.75	Unnamed Tributary to Soda Creek	Unnamed	0.39
Fallon	275.75	Unnamed Tributary to Soda Creek	Unnamed	0.20
Fallon	275.75	Unnamed Tributary to Soda Creek	Unnamed	0.18
Fallon	276.25	Unnamed Tributary to Soda Creek	Unnamed	0.22
Fallon	276.25	Unnamed Tributary to Soda Creek	Unnamed	0.18
Fallon	276.25	Unnamed Tributary to Soda Creek	Unnamed	0.39
Fallon	276.77	Sheep Creek	Unnamed	0.51
Fallon	276.77	Sheep Creek	Unnamed	2.24

Table Notes:

[a] GIS data source for waterbody names and size is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

Table 8 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Nebraska

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres)[a]
Keya Paha	602.06	Unnamed Tributary to Buffalo Creek	Unnamed Reservoir	4.74
Keya Paha	604.36	Dry Creek	Unnamed Reservoir	6.29
Keya Paha	604.36	Dry Creek	Unnamed Reservoir	2.98
Keya Paha	604.36	Dry Creek	Unnamed Reservoir	0.41
Keya Paha	606.19	Unnamed Tributary to Indian Creek	Unnamed Reservoir	2.84
Keya Paha	607.41	Unnamed Tributary to Shingle Creek	Unnamed Reservoir	1.82
Keya Paha	612.22	Unnamed Tributary to Keya Paha River	Unnamed Reservoir	0.71
Keya Paha	612.22	Unnamed Tributary to Keya Paha River	Unnamed Reservoir	0.31
Keya Paha	613.73	Spotted Tail Creek	Unnamed Reservoir	1.80
Keya Paha	614.8	Unnamed Tributary to Dry Run Creek	Unnamed Reservoir	1.88
Keya Paha	615.13	Dry Run Creek	Unnamed Reservoir	1.88
Keya Paha	615.63	Unnamed Tributary to Alkali Creek	Unnamed Reservoir	0.35
Keya Paha	615.63	Unnamed Tributary to Alkali Creek	Unnamed Reservoir	1.17
Boyd	621.18	Big Creek	Unnamed Reservoir	0.61
Holt	628.02	Unnamed Tributary to Niobrara River	Allyn Reservoir	8.82
Holt	629.55	Unnamed Tributary to Niobrara River	Unnamed Reservoir	2.40
Holt	629.55	Unnamed Tributary to Niobrara River	Allyn Reservoir	8.82
Holt	639.96	Unnamed Tributary to Brush Creek	Unnamed Reservoir	3.02
Holt	640.28	Unnamed Tributary to Brush Creek	Unnamed Reservoir	3.02
Holt	640.93	Unnamed Tributary to Brush Creek	Unnamed Reservoir	3.02
Holt	641.2	Unnamed Tributary to Brush Creek	Unnamed Reservoir	3.02
Holt	641.97	Unnamed Tributary to Brush Creek	Unnamed Reservoir	1.40
Holt	641.97	Unnamed Tributary to Brush Creek	Unnamed Reservoir	0.09
Holt	642.5	Brush Creek	Unnamed Reservoir	1.13
Holt	642.5	Brush Creek	Unnamed Reservoir	3.77
Holt	650.69	Unnamed Tributary to Middle Branch Eagle Creek	Unnamed Reservoir	1.61
Holt	652.65	Unnamed Tributary to East Branch Eagle Creek	Unnamed Reservoir	0.84
Holt	652.79	Unnamed Tributary to East Branch Eagle Creek	Unnamed Reservoir	0.84
Holt	656.54	Honey Creek	Unnamed Reservoir	8.36
Holt	658.49	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	1.28
Holt	658.49	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	0.32
Holt	658.49	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	0.22
Holt	658.6	Blackbird Creek	Unnamed Reservoir	0.22
Holt	658.6	Blackbird Creek	Unnamed Reservoir	0.32
Holt	658.6	Blackbird Creek	Unnamed Reservoir	1.28
Holt	659.15	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	0.32
Holt	659.15	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	1.28
Holt	659.77	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	4.73
Holt	659.77	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	0.32
Holt	659.77	Unnamed Tributary to Blackbird Creek	Unnamed Reservoir	1.28
Holt	661.68	Unnamed Tributary to Redbird Creek	Unnamed Reservoir	3.65
Holt	661.96	Unnamed Tributary to Redbird Creek	Unnamed Reservoir	3.65
Holt	663.03	Redbird Creek	Unnamed Reservoir	7.45
Holt	663.71	Unnamed Tributary to Redbird Creek	Unnamed Reservoir	7.45
Holt	675.26	Middle Branch Verdigre Creek	Waterman Reservoir	8.84
Holt	675.96	Unnamed Tributary to Middle Branch Verdigre Creek	Waterman Reservoir	8.84
Holt	680.49	Unnamed Tributary to South Branch Verdigre Creek	Unnamed Reservoir	0.18
Holt	680.49	Unnamed Tributary to South Branch Verdigre Creek	Unnamed Reservoir	0.31
Holt	680.49	Unnamed Tributary to South Branch Verdigre Creek	Unnamed Reservoir	0.67
Antelope	681.36	Unnamed Tributary to South Branch Verdigre Creek	Unnamed Reservoir	0.17
Antelope	681.36	Unnamed Tributary to South Branch Verdigre Creek	Unnamed Reservoir	4.11
Antelope	684.81	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	1.04
Antelope	684.81	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	7.59
Antelope	684.81	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	1.45
Antelope	684.92	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	7.59
Antelope	684.92	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	1.04
Antelope	684.92	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	1.45
Antelope	685.09	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	7.59

Table 8 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Nebraska

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres)[a]
Antelope	685.09	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	1.04
Antelope	685.09	Unnamed Tributary to Big Springs Creek	Unnamed Reservoir	1.45
Antelope	686.88	Unnamed Tributary to Hathoway Slough	Unnamed Reservoir	0.23
Antelope	686.88	Hathoway Slough	Unnamed Reservoir	1.27
Antelope	686.88	Hathoway Slough	Unnamed Reservoir	0.53
Antelope	687.62	Unnamed Tributary to Hathoway Slough	Unnamed Reservoir	0.53
Antelope	687.62	Unnamed Tributary to Hathoway Slough	Unnamed Reservoir	0.53
Antelope	687.62	Unnamed Tributary to Hathoway Slough	Unnamed Reservoir	1.27
Antelope	687.86	Hathoway Slough	Unnamed Reservoir	0.53
Antelope	687.86	Unnamed Tributary to Hathoway Slough	Unnamed Reservoir	1.27
Antelope	687.86	Unnamed Tributary to Hathoway Slough	Unnamed Reservoir	0.53
Antelope	709.4	Unnamed Tributary to Elkhorn River	Unnamed Reservoir	0.46
Boone	746.15	Unnamed Tributary to Beaver Creek	Unnamed Reservoir	2.78
Nance	761.89	Unnamed Tributary to Loup River	Unnamed Reservoir	0.23
Nance	761.89	Unnamed Tributary to Loup River	Unnamed Reservoir	1.20
Nance	761.89	Unnamed Tributary to Loup River	Unnamed Reservoir	1.73
Nance	762	Unnamed Tributary to Loup River	Unnamed Reservoir	6.37
Nance	762.21	Unnamed Tributary to Loup River	Unnamed Reservoir	6.37
Nance	762.82	Unnamed Tributary to Loup River	Unnamed Reservoir	1.12
Nance	763.48	Unnamed Tributary to Loup River	Unnamed Reservoir	0.72
Nance	763.66	Unnamed Tributary to Loup River	Unnamed Reservoir	1.02
Nance	763.66	Unnamed Tributary to Loup River	Unnamed Reservoir	0.72
Nance	764.05	Unnamed Tributary to Loup River	Unnamed Reservoir	0.99
Nance	764.05	Unnamed Tributary to Loup River	Unnamed Reservoir	0.72
Nance	764.05	Unnamed Tributary to Loup River	Unnamed Reservoir	1.02
Nance	765.32	Unnamed Tributary to Prairie Creek	Unnamed Reservoir	4.94
Nance	765.65	Unnamed Tributary to Prairie Creek	Unnamed Reservoir	0.92
Nance	765.65	Unnamed Tributary to Prairie Creek	Unnamed Reservoir	4.94
Merrick	770.05	Unnamed Tributary to Silver Creek	Unnamed Reservoir	14.08
Merrick	770.24	Unnamed Tributary to Silver Creek	Unnamed Reservoir	14.08
Merrick	771.53	Silver Creek	Unnamed Reservoir	14.08
Merrick	771.76	Unnamed Tributary to Silver Creek	Unnamed Reservoir	14.08
Merrick	772.25	Unnamed Tributary to Silver Creek	Unnamed Reservoir	14.08
Merrick	772.49	Unnamed Tributary to Silver Creek	Unnamed Reservoir	14.08
Merrick	773.35	Unnamed Tributary to Silver Creek	Unnamed Reservoir	14.08
Merrick	773.58	Unnamed Tributary to Silver Creek	Unnamed Reservoir	14.08
Merrick	774.59	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95
Merrick	774.59	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	774.59	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
Merrick	774.77	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95
Merrick	774.77	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	774.77	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
Merrick	774.9	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95
Merrick	774.9	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	774.9	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
Merrick	774.98	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95
Merrick	774.98	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	774.98	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
Merrick	775.04	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95
Merrick	775.04	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	775.04	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
Merrick	775.14	Platte River	Unnamed Reservoir	0.95
Merrick	775.14	Platte River	Unnamed Reservoir	39.48
Merrick	775.14	Platte River	Unnamed Reservoir	11.93
Merrick	775.34	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95
Merrick	775.34	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	775.34	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
Merrick	775.55	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95

Table 8 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in Nebraska

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres)[a]
Merrick	775.55	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	775.55	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
Polk	775.59	Unnamed Tributary to Platte River	Unnamed Reservoir	0.38
Merrick	775.59	Unnamed Tributary to Platte River	Unnamed Reservoir	0.95
Merrick	775.59	Unnamed Tributary to Platte River	Unnamed Reservoir	39.48
Merrick	775.59	Unnamed Tributary to Platte River	Unnamed Reservoir	11.93
York	791.97	Coon Branch	Unnamed Reservoir	0.44
York	801.18	Unnamed Tributary to Beaver Creek	Recharge Lake	23.19
York	801.18	Unnamed Tributary to Beaver Creek	Unnamed Reservoir	1.82
York	807.19	Unnamed Tributary to West Fork Big Blue River	Unnamed Reservoir	0.34
York	807.86	Unnamed Tributary to West Fork Big Blue River	Unnamed Reservoir	0.34
York	808.41	Unnamed Tributary to West Fork Big Blue River	Unnamed Reservoir	0.34
Fillmore	829.62	Unnamed Tributary to Turkey Creek	Unnamed Reservoir	1.57
Fillmore	829.62	Unnamed Tributary to Turkey Creek	Unnamed Reservoir	0.05
Fillmore	832.15	Unnamed Tributary to Turkey Creek	Unnamed Reservoir	2.27
Saline	832.81	Unnamed Tributary to Turkey Creek	Unnamed Reservoir	3.42
Saline	832.81	Unnamed Tributary to Turkey Creek	Unnamed Reservoir	37.17
Saline	833.33	Unnamed Tributary to Turkey Creek	Unnamed Reservoir	37.17
Saline	835.32	Unnamed Tributary to Turkey Creek	Unnamed Reservoir	37.17
Saline	836.43	Unnamed Tributary to North Fork Swan Creek	Unnamed Reservoir	0.86
Saline	837.46	Unnamed Tributary to North Fork Swan Creek	Unnamed Reservoir	1.98
Saline	838.13	Unnamed Tributary to North Fork Swan Creek	Unnamed Reservoir	87.96
Saline	838.38	Unnamed Tributary to North Fork Swan Creek	Unnamed Reservoir	87.96
Saline	838.59	Unnamed Tributary to North Fork Swan Creek	Unnamed Reservoir	87.96
Saline	839.6	Unnamed Tributary to North Fork Swan Creek	Unnamed Reservoir	87.96
Saline	844.77	Unnamed Tributary to South Fork Swan Creek	Unnamed Reservoir	33.13
Jefferson	848.98	Unnamed Tributary to South Fork Swan Creek	Unnamed Reservoir	3.12
Jefferson	849.43	Unnamed Tributary to South Fork Swan Creek	Unnamed Reservoir	3.12
Jefferson	849.76	Unnamed Tributary to South Fork Swan Creek	Unnamed Reservoir	1.55
Jefferson	849.76	Unnamed Tributary to South Fork Swan Creek	Unnamed Reservoir	0.47
Jefferson	850.51	Unnamed Tributary to South Fork Swan Creek	Unnamed Reservoir	8.17
Jefferson	856.02	Unnamed Tributary to Cub Creek	Cub Creek Reservoir 14-C	11.83
Jefferson	856.57	Unnamed Tributary to Cub Creek	Unnamed Reservoir	0.41
Jefferson	856.57	Unnamed Tributary to Cub Creek	Cub Creek Reservoir 14-C	11.83
Jefferson	862.6	Unnamed Tributary to Cub Creek	Cub Creek Reservoir 13-C	57.09
Jefferson	863.82	Unnamed Tributary to Big Indian Creek	Unnamed Reservoir	0.19
Jefferson	865.15	Unnamed Tributary to Big Indian Creek	Unnamed Reservoir	0.11
Jefferson	865.15	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 10-A	48.33
Jefferson	865.49	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 10-A	48.33
Jefferson	866.85	Unnamed Tributary to Big Indian Creek	Unnamed Reservoir	4.36
Jefferson	866.85	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 10-A	48.33
Jefferson	871.14	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 8-E	38.90
Jefferson	871.16	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 8-E	38.90
Jefferson	872.22	Unnamed Tributary to Big Indian Creek	Unnamed Reservoir	1.55
Jefferson	872.22	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 8-E	38.90
Jefferson	872.48	Unnamed Tributary to Big Indian Creek	Unnamed Reservoir	0.14
Jefferson	872.48	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 8-E	38.90
Jefferson	872.75	Unnamed Tributary to Big Indian Creek	Big Indian Creek Reservoir 8-E	38.90

Table Notes:

[a] GIS data source for waterbody names and size is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Harding	295.40	Unnamed Tributary to Little Missouri River	Unnamed	7.90
Harding	296.62	Unnamed Tributary to Kimble Creek	Unnamed	1.13
Harding	297.65	Unnamed Tributary to Kimble Creek	Unnamed	0.27
Harding	298.41	Unnamed Tributary to Kimble Creek	Unnamed	0.27
Harding	299.16	Unnamed Tributary to Kimble Creek	Unnamed	1.03
Harding	299.16	Unnamed Tributary to Kimble Creek	Unnamed	0.27
Harding	299.16	Unnamed Tributary to Kimble Creek	Unnamed	0.22
Harding	299.43	Unnamed Tributary to Kimble Creek	Unnamed	0.27
Harding	299.43	Unnamed Tributary to Kimble Creek	Unnamed	0.22
Harding	299.58	Unnamed Tributary to Kimble Creek	Unnamed	0.27
Harding	299.58	Unnamed Tributary to Kimble Creek	Unnamed	0.22
Harding	300.01	Unnamed Tributary to Kimble Creek	Unnamed	0.27
Harding	300.01	Unnamed Tributary to Kimble Creek	Unnamed	0.22
Harding	300.38	Kimble Creek	Unnamed	1.19
Harding	300.38	Kimble Creek	Unnamed	0.27
Harding	300.38	Kimble Creek	Unnamed	0.22
Harding	302.96	Unnamed Tributary to Dry House Creek	Unnamed	9.62
Harding	302.96	Unnamed Tributary to Dry House Creek	Unnamed	5.39
Harding	302.96	Unnamed Tributary to Dry House Creek	Unnamed	1.79
Harding	302.96	Unnamed Tributary to Dry House Creek	Unnamed	1.69
Harding	302.96	Unnamed Tributary to Dry House Creek	Unnamed	0.14
Harding	303.45	Unnamed Tributary to Dry House Creek	Unnamed	9.62
Harding	303.45	Unnamed Tributary to Dry House Creek	Unnamed	5.39
Harding	303.45	Unnamed Tributary to Dry House Creek	Unnamed	1.79
Harding	303.45	Unnamed Tributary to Dry House Creek	Unnamed	1.69
Harding	303.45	Unnamed Tributary to Dry House Creek	Unnamed	0.14
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	5.20
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	0.98
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	0.63
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	0.63
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	0.53
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	0.50
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	0.41
Harding	309.69	Unnamed Tributary to Jones Creek	Unnamed	0.19
Harding	311.32	Unnamed Tributary to Rush Creek	Lake Gardner	191.54
Harding	311.32	Unnamed Tributary to Rush Creek	Unnamed	11.53
Harding	311.32	Unnamed Tributary to Rush Creek	Unnamed	10.94
Harding	311.32	Unnamed Tributary to Rush Creek	Unnamed	1.93
Harding	311.32	Unnamed Tributary to Rush Creek	Unnamed	0.48
Harding	311.73	Unnamed Tributary to Rush Creek	Lake Gardner	191.54
Harding	311.73	Unnamed Tributary to Rush Creek	Unnamed	11.53
Harding	311.73	Unnamed Tributary to Rush Creek	Unnamed	10.94
Harding	311.73	Unnamed Tributary to Rush Creek	Unnamed	1.93
Harding	311.73	Unnamed Tributary to Rush Creek	Unnamed	0.48
Harding	312.70	Unnamed Tributary to Rush Creek	Lake Gardner	191.54
Harding	312.70	Unnamed Tributary to Rush Creek	Unnamed	11.53
Harding	312.70	Unnamed Tributary to Rush Creek	Unnamed	10.94
Harding	312.70	Unnamed Tributary to Rush Creek	Unnamed	1.93
Harding	312.70	Unnamed Tributary to Rush Creek	Unnamed	0.48
Harding	315.68	Unnamed Tributary to Rush Creek	Unnamed	3.26
Harding	316.24	Unnamed Tributary to Rush Creek	Unnamed	9.41
Harding	316.24	Unnamed Tributary to Rush Creek	Unnamed	3.26
Harding	317.27	Unnamed Tributary to Rush Creek	Unnamed	2.89

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Harding	317.27	Unnamed Tributary to Rush Creek	Unnamed	1.31
Harding	317.27	Unnamed Tributary to Rush Creek	Unnamed	0.47
Harding	317.27	Unnamed Tributary to Rush Creek	Unnamed	0.41
Harding	320.06	Slick Creek	Unnamed	6.09
Harding	320.06	Slick Creek	Unnamed	2.47
Harding	320.63	Unnamed Tributary to Slick Creek	Unnamed	6.09
Harding	320.63	Unnamed Tributary to Slick Creek	Unnamed	2.78
Harding	332.39	Double X Creek	Unnamed	54.67
Harding	332.39	Double X Creek	Unnamed	2.01
Harding	332.39	Double X Creek	Unnamed	1.07
Harding	332.39	Double X Creek	Unnamed	1.07
Harding	332.39	Double X Creek	Unnamed	0.50
Harding	332.39	Double X Creek	Unnamed	0.08
Harding	333.95	Unnamed Tributary to Double X Creek	Unnamed	9.11
Harding	335.47	Unnamed Tributary to Double X Creek	Unnamed	13.12
Harding	337.37	Unnamed Tributary to Wolf Creek	Unnamed	3.88
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.55
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.47
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.34
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.34
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.32
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.30
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.30
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.23
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.20
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.19
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.11
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.10
Harding	338.78	Unnamed Tributary to Wolf Creek	Unnamed	0.10
Harding	339.20	Wolf Creek	Unnamed	0.55
Harding	339.20	Wolf Creek	Unnamed	0.47
Harding	339.20	Wolf Creek	Unnamed	0.34
Harding	339.20	Wolf Creek	Unnamed	0.34
Harding	339.20	Unnamed Tributary to Wolf Creek	Unnamed	0.32
Harding	339.20	Wolf Creek	Unnamed	0.30
Harding	339.20	Wolf Creek	Unnamed	0.30
Harding	339.20	Unnamed Tributary to Wolf Creek	Unnamed	0.23
Harding	339.20	Wolf Creek	Unnamed	0.20
Harding	339.20	Wolf Creek	Unnamed	0.19
Harding	339.20	Wolf Creek	Unnamed	0.11
Harding	339.20	Wolf Creek	Unnamed	0.10
Harding	339.20	Unnamed Tributary to Wolf Creek	Unnamed	0.10
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.55
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.47
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.34
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.32
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.30
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.30
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.30
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.23
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.20
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.19
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.11

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.10
Harding	340.78	Unnamed Tributary to Wolf Creek	Unnamed	0.10
Harding	343.06	Red Butte Creek	Unnamed	0.19
Harding	343.06	Red Butte Creek	Unnamed	0.19
Harding	346.80	Little Cowboy Creek	Unnamed	1.38
Harding	347.95	Unnamed Tributary to North Fork Moreau River	Unnamed	1.01
Harding	348.09	Unnamed Tributary to North Fork Moreau River	Unnamed	1.01
Harding	348.81	Unnamed Tributary to North Fork Moreau River	Unnamed	3.28
Harding	355.48	Unnamed Tributary to Dry Creek	Unnamed	2.28
Harding	356.19	Unnamed Tributary to North Fork Moreau River	Unnamed	3.10
Perkins	363.65	Unnamed Tributary to North Fork Moreau River	Unnamed	3.49
Perkins	363.67	Unnamed Tributary to North Fork Moreau River	Unnamed	3.49
Perkins	365.63	Unnamed Tributary to South Fork Moreau River	Unnamed	0.35
Perkins	365.63	Unnamed Tributary to South Fork Moreau River	Unnamed	0.30
Meade	378.17	Unnamed Tributary to Big Cedar Creek	Unnamed	0.98
Meade	378.45	Unnamed Tributary to Big Cedar Creek	Unnamed	0.42
Meade	380.77	Unnamed Tributary to West Branch Pine Creek	Unnamed	18.40
Meade	380.77	Unnamed Tributary to West Branch Pine Creek	Unnamed	5.84
Meade	380.77	Unnamed Tributary to West Branch Pine Creek	Unnamed	1.38
Meade	380.77	Unnamed Tributary to West Branch Pine Creek	Unnamed	0.80
Meade	383.17	West Branch Pine Creek	Unnamed	18.40
Meade	383.17	West Branch Pine Creek	Unnamed	1.38
Meade	383.17	West Branch Pine Creek	Unnamed	0.80
Meade	387.83	Pine Creek	Unnamed	1.38
Meade	388.09	Unnamed Tributary to West Branch Pine Creek	Unnamed	1.38
Meade	388.56	Unnamed Tributary to West Branch Pine Creek	Unnamed	1.38
Meade	389.40	Unnamed Tributary to Pine Creek	Unnamed	4.35
Meade	389.40	Unnamed Tributary to West Branch Pine Creek	Unnamed	1.38
Meade	390.47	Unnamed Tributary to Pine Creek	Unnamed	2.57
Meade	390.47	Unnamed Tributary to West Branch Pine Creek	Unnamed	1.38
Meade	390.47	Unnamed Tributary to Pine Creek	Unnamed	0.71
Meade	390.47	Unnamed Tributary to Pine Creek	Unnamed	0.39
Meade	390.47	Unnamed Tributary to Pine Creek	Unnamed	0.29
Meade	390.50	Unnamed Tributary to Pine Creek	Unnamed	2.57
Meade	390.50	Unnamed Tributary to West Branch Pine Creek	Unnamed	1.38
Meade	390.50	Unnamed Tributary to Pine Creek	Unnamed	0.71
Meade	390.50	Unnamed Tributary to Pine Creek	Unnamed	0.39
Meade	390.50	Unnamed Tributary to Pine Creek	Unnamed	0.29
Meade	390.52	Unnamed Tributary to Pine Creek	Unnamed	2.57
Meade	390.52	Unnamed Tributary to West Branch Pine Creek	Unnamed	1.38
Meade	390.52	Unnamed Tributary to Pine Creek	Unnamed	0.71
Meade	390.52	Unnamed Tributary to Pine Creek	Unnamed	0.39
Meade	390.52	Unnamed Tributary to Pine Creek	Unnamed	0.29
Meade	396.34	Unnamed Tributary to Pine Creek	Unnamed	2.20
Meade	396.34	Unnamed Tributary to Pine Creek	Unnamed	1.98
Meade	396.57	Unnamed Tributary to Pine Creek	Unnamed	2.20
Meade	396.57	Unnamed Tributary to Pine Creek	Unnamed	1.98
Meade	397.24	Unnamed Tributary to Pine Creek	Unnamed	1.95
Meade	397.90	Unnamed Tributary to Pine Creek	Unnamed	1.52
Meade	397.90	Unnamed Tributary to Pine Creek	Unnamed	0.77
Meade	398.05	Unnamed Tributary to Pine Creek	Unnamed	1.52
Meade	398.05	Unnamed Tributary to Pine Creek	Unnamed	0.77
Meade	398.51	Unnamed Tributary to Pine Creek	Unnamed	1.91

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Meade	398.51	Unnamed Tributary to Pine Creek	Unnamed	0.19
Meade	398.82	Unnamed Tributary to Pine Creek	Unnamed	1.91
Meade	398.82	Unnamed Tributary to Pine Creek	Unnamed	0.63
Meade	398.82	Unnamed Tributary to Pine Creek	Unnamed	0.63
Meade	398.98	Unnamed Tributary to Pine Creek	Unnamed	1.91
Meade	400.93	Unnamed Tributary to Sulphur Creek	Unnamed	1.60
Meade	400.93	Unnamed Tributary to Sulphur Creek	Unnamed	0.77
Meade	401.22	Unnamed Tributary to Sulphur Creek	Unnamed	1.60
Meade	401.22	Unnamed Tributary to Sulphur Creek	Unnamed	0.77
Meade	401.66	Unnamed Tributary to Sulphur Creek	Unnamed	0.77
Meade	401.66	Unnamed Tributary to Sulphur Creek	Unnamed	0.67
Meade	401.99	Unnamed Tributary to Sulphur Creek	Unnamed	0.77
Meade	401.99	Unnamed Tributary to Sulphur Creek	Unnamed	0.67
Meade	402.21	Unnamed Tributary to Sulphur Creek	Unnamed	0.77
Meade	402.21	Unnamed Tributary to Sulphur Creek	Unnamed	0.67
Meade	402.77	Unnamed Tributary to Sulphur Creek	Unnamed	0.52
Meade	410.92	Unnamed Tributary to Cherry Creek	Unnamed	6.87
Meade	411.24	Unnamed Tributary to Cherry Creek	Unnamed	0.19
Haakon	440.43	Unnamed Tributary to Bridger Creek	Unnamed	10.11
Haakon	440.43	Unnamed Tributary to Bridger Creek	Unnamed	4.05
Haakon	440.43	Unnamed Tributary to Bridger Creek	Unnamed	2.43
Haakon	440.43	Unnamed Tributary to Bridger Creek	Unnamed	1.36
Haakon	440.43	Unnamed Tributary to Bridger Creek	Unnamed	0.32
Haakon	441.34	Unnamed Tributary to Bridger Creek	Unnamed	10.11
Haakon	441.34	Unnamed Tributary to Bridger Creek	Unnamed	4.05
Haakon	441.34	Unnamed Tributary to Bridger Creek	Unnamed	2.43
Haakon	441.34	Unnamed Tributary to Bridger Creek	Unnamed	1.36
Haakon	441.34	Unnamed Tributary to Bridger Creek	Unnamed	0.32
Haakon	441.81	Unnamed Tributary to Bridger Creek	Unnamed	10.11
Haakon	441.81	Unnamed Tributary to Bridger Creek	Unnamed	4.05
Haakon	441.81	Unnamed Tributary to Bridger Creek	Unnamed	2.43
Haakon	441.81	Unnamed Tributary to Bridger Creek	Unnamed	1.36
Haakon	441.81	Unnamed Tributary to Bridger Creek	Unnamed	0.32
Haakon	441.99	Unnamed Tributary to Bridger Creek	Unnamed	10.11
Haakon	441.99	Unnamed Tributary to Bridger Creek	Unnamed	4.16
Haakon	441.99	Unnamed Tributary to Bridger Creek	Unnamed	4.05
Haakon	441.99	Unnamed Tributary to Bridger Creek	Unnamed	2.43
Haakon	441.99	Unnamed Tributary to Bridger Creek	Unnamed	1.36
Haakon	441.99	Unnamed Tributary to Bridger Creek	Unnamed	0.32
Haakon	442.59	Unnamed Tributary to Bridger Creek	Unnamed	2.62
Haakon	442.59	Unnamed Tributary to Bridger Creek	Unnamed	1.52
Haakon	445.77	Unnamed Tributary to West Plum Creek	Unnamed	4.97
Haakon	449.67	Unnamed Tributary to West Plum Creek	Unnamed	2.33
Haakon	449.67	Unnamed Tributary to West Plum Creek	Unnamed	0.73
Haakon	452.87	Unnamed Tributary to West Plum Creek	Unnamed	19.86
Haakon	455.34	Unnamed Tributary to West Plum Creek	Unnamed	34.53
Haakon	455.34	Unnamed Tributary to West Plum Creek	Unnamed	0.31
Haakon	455.45	Unnamed Tributary to West Plum Creek	Unnamed	34.53
Haakon	455.45	Unnamed Tributary to West Plum Creek	Unnamed	0.31
Haakon	456.15	Unnamed Tributary to Cottonwood Creek	Unnamed	12.51
Haakon	456.15	Unnamed Tributary to Cottonwood Creek	Unnamed	5.62
Haakon	456.60	Unnamed Tributary to Cottonwood Creek	Unnamed	12.51
Haakon	456.60	Unnamed Tributary to Cottonwood Creek	Unnamed	5.62

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Haakon	457.12	Unnamed Tributary to Cottonwood Creek	Unnamed	12.51
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	7.53
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	1.37
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.93
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.41
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.40
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.39
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.31
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.29
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.24
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.23
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	459.04	Unnamed Tributary to Buzzard Creek	Unnamed	0.20
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	1.37
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.93
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.41
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.40
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.39
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.31
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.29
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.24
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.23
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	459.80	Unnamed Tributary to Buzzard Creek	Unnamed	0.20
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	3.45
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	1.37
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.93
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.41
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.40
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.39
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.31
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.29
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.24
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.23
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	460.51	Unnamed Tributary to Buzzard Creek	Unnamed	0.20
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Unnamed	9.98
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Unnamed	9.00
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Unnamed	0.68
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Unnamed	0.49
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Unnamed	0.36
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Unnamed	0.35
Haakon	460.88	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Unnamed	9.98
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Unnamed	9.00
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Unnamed	0.68
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Unnamed	0.49
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Unnamed	0.36
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Unnamed	0.35
Haakon	461.13	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	461.99	Unnamed Tributary to Buzzard Creek	Unnamed	0.68
Haakon	461.99	Unnamed Tributary to Buzzard Creek	Unnamed	0.49
Haakon	461.99	Unnamed Tributary to Buzzard Creek	Unnamed	0.36

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Haakon	461.99	Unnamed Tributary to Buzzard Creek	Unnamed	0.35
Haakon	461.99	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	462.57	Unnamed Tributary to Buzzard Creek	Unnamed	4.17
Haakon	462.57	Unnamed Tributary to Buzzard Creek	Unnamed	0.68
Haakon	462.57	Unnamed Tributary to Buzzard Creek	Unnamed	0.49
Haakon	462.57	Unnamed Tributary to Buzzard Creek	Unnamed	0.36
Haakon	462.57	Unnamed Tributary to Buzzard Creek	Unnamed	0.35
Haakon	462.57	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	463.14	Unnamed Tributary to Buzzard Creek	Unnamed	1.80
Haakon	463.14	Unnamed Tributary to Buzzard Creek	Unnamed	0.68
Haakon	463.14	Unnamed Tributary to Buzzard Creek	Unnamed	0.49
Haakon	463.14	Unnamed Tributary to Buzzard Creek	Unnamed	0.36
Haakon	463.14	Unnamed Tributary to Buzzard Creek	Unnamed	0.35
Haakon	463.14	Unnamed Tributary to Buzzard Creek	Unnamed	0.22
Haakon	464.12	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.16
Haakon	464.27	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.16
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	61.48
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.12
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.80
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.56
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.54
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.48
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.34
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.04
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	464.65	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	61.48
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.12
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.80
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.71
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.56
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.54
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.48
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.34
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.04
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.71
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	464.92	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.13
Haakon	465.32	Witcher Holes Creek	Unnamed	61.48
Haakon	465.32	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.12
Haakon	465.32	Witcher Holes Creek	Unnamed	2.49
Haakon	465.32	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.80
Haakon	465.32	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.56
Haakon	465.32	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.54
Haakon	465.32	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.48
Haakon	465.32	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.34
Haakon	465.32	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.04
Haakon	465.32	Witcher Holes Creek	Unnamed	0.40
Haakon	465.32	Witcher Holes Creek	Unnamed	0.40
Haakon	465.33	Witcher Holes Creek	Unnamed	61.48
Haakon	465.33	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.12
Haakon	465.33	Witcher Holes Creek	Unnamed	2.49

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Haakon	465.33	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.80
Haakon	465.33	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.56
Haakon	465.33	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.54
Haakon	465.33	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.48
Haakon	465.33	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.34
Haakon	465.33	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.04
Haakon	465.33	Witcher Holes Creek	Unnamed	0.40
Haakon	465.33	Witcher Holes Creek	Unnamed	0.40
Haakon	465.35	Witcher Holes Creek	Unnamed	61.48
Haakon	465.35	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.12
Haakon	465.35	Witcher Holes Creek	Unnamed	2.49
Haakon	465.35	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.80
Haakon	465.35	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.56
Haakon	465.35	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.54
Haakon	465.35	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.48
Haakon	465.35	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.34
Haakon	465.35	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.04
Haakon	465.35	Witcher Holes Creek	Unnamed	0.40
Haakon	465.35	Witcher Holes Creek	Unnamed	0.40
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	61.48
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	11.15
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	3.12
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.80
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.56
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.54
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.48
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.34
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	1.04
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	466.03	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	466.76	Unnamed Tributary to Witcher Holes Creek	Unnamed	61.48
Haakon	466.76	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	466.76	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	466.94	Unnamed Tributary to Witcher Holes Creek	Unnamed	61.48
Haakon	466.94	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	466.94	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	467.51	Unnamed Tributary to Witcher Holes Creek	Unnamed	61.48
Haakon	467.51	Unnamed Tributary to Witcher Holes Creek	Unnamed	8.30
Haakon	467.51	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	467.51	Unnamed Tributary to Witcher Holes Creek	Unnamed	0.40
Haakon	469.16	Unnamed Tributary to Sarah Laribee Creek	Unnamed	20.25
Haakon	469.16	Sarah Laribee Creek	Unnamed	14.03
Haakon	469.18	Unnamed Tributary to Sarah Laribee Creek	Unnamed	20.25
Haakon	469.18	Unnamed Tributary to Sarah Laribee Creek	Unnamed	14.03
Haakon	469.39	Sarah Laribee Creek	Unnamed	20.25
Haakon	469.39	Sarah Laribee Creek	Unnamed	14.03
Haakon	469.40	Unnamed Tributary to Sarah Laribee Creek	Unnamed	20.25
Haakon	469.40	Unnamed Tributary to Sarah Laribee Creek	Unnamed	14.03
Haakon	470.22	Unnamed Tributary to Sarah Laribee Creek	Unnamed	20.25
Haakon	470.96	Unnamed Tributary to Nowlin Creek	Unnamed	11.60
Haakon	470.96	Unnamed Tributary to Nowlin Creek	Unnamed	1.36
Haakon	472.82	Nowlin Creek	Unnamed	1.21
Haakon	473.66	Unnamed Tributary to Nowlin Creek	Unnamed	0.88

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Haakon	478.65	Unnamed Tributary to Jack Dailey Creek	Unnamed	0.21
Haakon	483.70	Mitchell Creek	Unnamed	2.26
Haakon	483.70	Mitchell Creek	Unnamed	1.48
Haakon	487.44	Unnamed Tributary to Bad River	Unnamed	0.33
Jones	492.62	Unnamed Tributary to South Creek	Unnamed	0.89
Jones	492.62	Unnamed Tributary to South Creek	Unnamed	0.48
Jones	492.67	Unnamed Tributary to South Creek	Unnamed	0.89
Jones	492.67	Unnamed Tributary to South Creek	Unnamed	0.48
Jones	492.84	Unnamed Tributary to South Creek	Unnamed	0.89
Jones	492.84	Unnamed Tributary to South Creek	Unnamed	0.48
Jones	493.44	Unnamed Tributary to South Creek	Unnamed	1.05
Jones	493.44	Unnamed Tributary to South Creek	Unnamed	0.34
Jones	493.74	Unnamed Tributary to South Creek	Unnamed	1.05
Jones	493.74	Unnamed Tributary to South Creek	Unnamed	0.34
Jones	494.75	Unnamed Tributary to South Creek	Unnamed	0.53
Jones	494.75	Unnamed Tributary to South Creek	Unnamed	0.42
Jones	496.63	Unnamed Tributary to Dry Creek	Unnamed	0.36
Jones	499.11	Unnamed Tributary to Dry Creek	Unnamed	2.62
Jones	501.22	Unnamed Tributary to Dry Creek	Unnamed	3.30
Jones	502.39	Unnamed Tributary to Dry Creek	Unnamed	0.37
Jones	503.35	Unnamed Tributary to Dry Creek	Unnamed	3.81
Jones	503.35	Unnamed Tributary to Dry Creek	Unnamed	3.81
Jones	503.35	Unnamed Tributary to Dry Creek	Unnamed	2.70
Jones	503.35	Unnamed Tributary to Dry Creek	Unnamed	0.31
Jones	503.57	Unnamed Tributary to Dry Creek	Unnamed	5.32
Jones	503.57	Unnamed Tributary to Dry Creek	Unnamed	1.32
Jones	505.37	Unnamed Tributary to White Clay Creek	Unnamed	0.45
Jones	506.17	White Clay Creek	Unnamed	3.10
Jones	506.17	White Clay Creek	Unnamed	2.27
Jones	506.17	White Clay Creek	Unnamed	1.59
Jones	506.17	White Clay Creek	Unnamed	1.49
Jones	506.17	White Clay Creek	Unnamed	0.20
Jones	506.17	White Clay Creek	Unnamed	0.17
Jones	506.83	Unnamed Tributary to White Clay Creek	Unnamed	3.10
Jones	506.83	Unnamed Tributary to White Clay Creek	Unnamed	2.27
Jones	506.83	Unnamed Tributary to White Clay Creek	Unnamed	1.59
Jones	506.83	Unnamed Tributary to White Clay Creek	Unnamed	1.52
Jones	506.83	Unnamed Tributary to White Clay Creek	Unnamed	1.49
Jones	506.83	Unnamed Tributary to White Clay Creek	Unnamed	0.20
Jones	506.83	Unnamed Tributary to White Clay Creek	Unnamed	0.17
Jones	507.37	Unnamed Tributary to White Clay Creek	Unnamed	3.10
Jones	507.37	Unnamed Tributary to White Clay Creek	Unnamed	2.27
Jones	507.37	Unnamed Tributary to White Clay Creek	Unnamed	1.59
Jones	507.37	Unnamed Tributary to White Clay Creek	Unnamed	1.49
Jones	507.37	Unnamed Tributary to White Clay Creek	Unnamed	0.98
Jones	507.37	Unnamed Tributary to White Clay Creek	Unnamed	0.20
Jones	507.37	Unnamed Tributary to White Clay Creek	Unnamed	0.17
Jones	508.07	Unnamed Tributary to White Clay Creek	Unnamed	3.10
Jones	508.07	Unnamed Tributary to White Clay Creek	Unnamed	2.32
Jones	508.07	Unnamed Tributary to White Clay Creek	Unnamed	2.27
Jones	508.07	Unnamed Tributary to White Clay Creek	Unnamed	1.59
Jones	508.07	Unnamed Tributary to White Clay Creek	Unnamed	1.49
Jones	508.07	Unnamed Tributary to White Clay Creek	Unnamed	0.20

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Jones	508.07	Unnamed Tributary to White Clay Creek	Unnamed	0.17
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	4.39
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	3.67
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	3.10
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	2.27
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	1.59
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	1.49
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	0.54
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	0.39
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	0.20
Jones	509.07	Unnamed Tributary to White Clay Creek	Unnamed	0.17
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	12.61
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	3.10
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	2.56
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	2.27
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	1.73
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	1.59
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	1.49
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	1.04
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	0.66
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	0.39
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	0.39
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	0.20
Jones	509.88	Unnamed Tributary to White Clay Creek	Unnamed	0.17
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	12.61
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	3.10
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	2.56
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	2.27
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	1.73
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	1.59
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	1.49
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	1.04
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	0.66
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	0.39
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	0.39
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	0.20
Jones	510.03	Unnamed Tributary to White Clay Creek	Unnamed	0.17
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Unnamed	16.64
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Unnamed	7.95
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Unnamed	7.79
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Unnamed	4.07
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Unnamed	1.40
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Unnamed	0.39
Jones	510.60	Unnamed Tributary to East Branch White Clay Creek	Unnamed	0.33
Jones	511.25	East Branch White Clay Creek	Unnamed	16.64
Jones	511.25	East Branch White Clay Creek	Unnamed	7.95
Jones	511.25	East Branch White Clay Creek	Unnamed	7.79
Jones	511.25	East Branch White Clay Creek	Unnamed	4.07
Jones	511.25	East Branch White Clay Creek	Unnamed	1.40
Jones	511.25	East Branch White Clay Creek	Unnamed	0.33
Jones	512.29	Unnamed Tributary to East Branch White Clay Creek	Unnamed	16.64
Jones	512.29	Unnamed Tributary to East Branch White Clay Creek	Unnamed	4.07
Jones	512.29	Unnamed Tributary to East Branch White Clay Creek	Unnamed	1.40

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Jones	512.29	Unnamed Tributary to East Branch White Clay Creek	Unnamed	0.33
Jones	512.99	Unnamed Tributary to East Branch White Clay Creek	Unnamed	16.64
Jones	512.99	Unnamed Tributary to East Branch White Clay Creek	Unnamed	4.07
Jones	512.99	Unnamed Tributary to East Branch White Clay Creek	Unnamed	3.39
Jones	512.99	Unnamed Tributary to East Branch White Clay Creek	Unnamed	1.40
Jones	512.99	Unnamed Tributary to East Branch White Clay Creek	Unnamed	0.33
Jones	516.69	Unnamed Tributary to Medicine Creek	Unnamed	7.07
Jones	516.69	Unnamed Tributary to Medicine Creek	Unnamed	6.31
Jones	516.69	Unnamed Tributary to Medicine Creek	Unnamed	2.80
Jones	516.69	Unnamed Tributary to Medicine Creek	Unnamed	1.78
Jones	516.69	Unnamed Tributary to Medicine Creek	Unnamed	0.48
Jones	516.69	Unnamed Tributary to Medicine Creek	Unnamed	0.30
Jones	516.69	Unnamed Tributary to Medicine Creek	Unnamed	0.22
Jones	518.90	Unnamed Tributary to Bull Creek	Unnamed	1.54
Jones	518.90	Unnamed Tributary to Bull Creek	Unnamed	1.51
Jones	518.90	Unnamed Tributary to Bull Creek	Unnamed	1.07
Jones	518.90	Unnamed Tributary to Bull Creek	Unnamed	0.42
Jones	519.52	Unnamed Tributary to Bull Creek	Unnamed	3.12
Jones	519.52	Unnamed Tributary to Bull Creek	Unnamed	1.52
Jones	519.52	Unnamed Tributary to Bull Creek	Unnamed	1.25
Jones	521.73	Unnamed Tributary to Medicine Creek	Unnamed	2.27
Jones	521.73	Unnamed Tributary to Medicine Creek	Unnamed	0.34
Jones	521.73	Unnamed Tributary to Medicine Creek	Unnamed	0.11
Jones	522.56	Unnamed Tributary to Medicine Creek	Unnamed	2.27
Jones	522.56	Unnamed Tributary to Medicine Creek	Unnamed	0.34
Jones	523.27	Unnamed Tributary to Williams Creek	Unnamed	15.42
Jones	523.27	Williams Creek	Unnamed	15.42
Lyman	523.27	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	523.27	Unnamed Tributary to Williams Creek	Unnamed	4.48
Jones	523.27	Unnamed Tributary to Williams Creek	Unnamed	3.97
Jones	523.27	Unnamed Tributary to Williams Creek	Unnamed	3.52
Lyman	523.27	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	523.27	Unnamed Tributary to Williams Creek	Unnamed	1.95
Jones	523.27	Unnamed Tributary to Williams Creek	Unnamed	0.34
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	15.42
Lyman	523.69	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	523.69	Unnamed Tributary to Williams Creek	Unnamed	4.48
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	3.97
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	3.52
Lyman	523.69	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	523.69	Unnamed Tributary to Williams Creek	Unnamed	1.95
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	1.07
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	0.65
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	0.59
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	0.44
Jones	523.69	Unnamed Tributary to Williams Creek	Unnamed	0.34
Jones	524.42	Unnamed Tributary to Williams Creek	Unnamed	15.42
Lyman	524.42	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	524.42	Unnamed Tributary to Williams Creek	Unnamed	4.48
Lyman	524.42	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	524.42	Unnamed Tributary to Williams Creek	Unnamed	1.95
Jones	524.42	Unnamed Tributary to Williams Creek	Unnamed	1.07
Jones	524.42	Unnamed Tributary to Williams Creek	Unnamed	0.65

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Jones	524.42	Unnamed Tributary to Williams Creek	Unnamed	0.59
Jones	524.42	Unnamed Tributary to Williams Creek	Unnamed	0.44
Lyman	524.87	Williams Creek	Unnamed	4.79
Lyman	524.87	Williams Creek	Unnamed	4.48
Lyman	524.87	Williams Creek	Unnamed	1.95
Lyman	524.87	Williams Creek	Unnamed	1.95
Jones	524.87	Williams Creek	Unnamed	1.07
Jones	524.87	Unnamed Tributary to Williams Creek	Unnamed	0.65
Jones	524.87	Williams Creek	Unnamed	0.59
Jones	524.87	Williams Creek	Unnamed	0.44
Jones	524.87	Williams Creek	Unnamed	0.44
Jones	525.26	Unnamed Tributary to Williams Creek	Unnamed	15.42
Lyman	525.26	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	525.26	Unnamed Tributary to Williams Creek	Unnamed	4.48
Lyman	525.26	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	525.26	Unnamed Tributary to Williams Creek	Unnamed	1.95
Jones	525.26	Unnamed Tributary to Williams Creek	Unnamed	1.07
Jones	525.26	Unnamed Tributary to Williams Creek	Unnamed	0.69
Jones	525.26	Unnamed Tributary to Williams Creek	Unnamed	0.44
Jones	526.60	Unnamed Tributary to Williams Creek	Unnamed	13.15
Lyman	526.60	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	526.60	Unnamed Tributary to Williams Creek	Unnamed	4.48
Lyman	526.60	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	526.60	Unnamed Tributary to Williams Creek	Unnamed	1.95
Jones	526.60	Unnamed Tributary to Williams Creek	Unnamed	1.18
Jones	526.60	Unnamed Tributary to Williams Creek	Unnamed	0.94
Jones	526.60	Unnamed Tributary to Williams Creek	Unnamed	0.88
Jones	526.60	Unnamed Tributary to Williams Creek	Unnamed	0.53
Jones	526.60	Unnamed Tributary to Williams Creek	Unnamed	0.40
Jones	526.60	Unnamed Tributary to Williams Creek	Unnamed	0.21
Jones	527.99	Unnamed Tributary to Williams Creek	Unnamed	6.86
Lyman	527.99	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	527.99	Unnamed Tributary to Williams Creek	Unnamed	4.48
Jones	527.99	Unnamed Tributary to Williams Creek	Unnamed	2.30
Lyman	527.99	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	527.99	Unnamed Tributary to Williams Creek	Unnamed	1.95
Jones	528.04	Unnamed Tributary to Williams Creek	Unnamed	6.86
Lyman	528.04	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	528.04	Unnamed Tributary to Williams Creek	Unnamed	4.48
Jones	528.04	Unnamed Tributary to Williams Creek	Unnamed	2.30
Lyman	528.04	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	528.04	Unnamed Tributary to Williams Creek	Unnamed	1.95
Jones	528.07	Unnamed Tributary to Williams Creek	Unnamed	6.86
Lyman	528.07	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	528.07	Unnamed Tributary to Williams Creek	Unnamed	4.48
Jones	528.07	Unnamed Tributary to Williams Creek	Unnamed	2.30
Lyman	528.07	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	528.07	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	529.52	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	529.52	Unnamed Tributary to Williams Creek	Unnamed	4.48
Lyman	529.52	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	529.52	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	529.52	Unnamed Tributary to Williams Creek	Unnamed	0.21

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Lyman	529.92	Unnamed Tributary to Williams Creek	Unnamed	4.79
Lyman	529.92	Unnamed Tributary to Williams Creek	Unnamed	4.48
Lyman	529.92	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	529.92	Unnamed Tributary to Williams Creek	Unnamed	1.95
Lyman	529.92	Unnamed Tributary to Williams Creek	Unnamed	0.21
Tripp	545.70	Unnamed Tributary to Cottonwood Creek	Unnamed	0.83
Tripp	546.76	Unnamed Tributary to Cottonwood Creek	Unnamed	2.14
Tripp	549.49	Unnamed Tributary to Cottonwood Creek	Unnamed	0.34
Tripp	550.20	Unnamed Tributary to Cottonwood Creek	Unnamed	0.27
Tripp	550.87	Unnamed Tributary to Cottonwood Creek	Unnamed	0.25
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	1.97
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	0.42
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	0.35
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	0.27
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	0.23
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	0.22
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	0.14
Tripp	551.38	Unnamed Tributary to Owl Creek	Unnamed	0.12
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	1.97
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	0.42
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	0.35
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	0.27
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	0.23
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	0.22
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	0.14
Tripp	551.55	Unnamed Tributary to Owl Creek	Unnamed	0.12
Tripp	553.87	Unnamed Tributary to Owl Creek	Unnamed	0.42
Tripp	553.87	Unnamed Tributary to Owl Creek	Unnamed	0.35
Tripp	553.87	Unnamed Tributary to Owl Creek	Unnamed	0.27
Tripp	553.87	Unnamed Tributary to Owl Creek	Unnamed	0.23
Tripp	553.87	Unnamed Tributary to Owl Creek	Unnamed	0.22
Tripp	553.87	Unnamed Tributary to Owl Creek	Unnamed	0.14
Tripp	554.43	Unnamed Tributary to Owl Creek	Unnamed	0.20
Tripp	554.43	Unnamed Tributary to Owl Creek	Unnamed	0.09
Tripp	555.68	Unnamed Tributary to Owl Creek	Unnamed	0.48
Tripp	555.68	Unnamed Tributary to Owl Creek	Unnamed	0.37
Tripp	555.68	Unnamed Tributary to Owl Creek	Unnamed	0.20
Tripp	555.68	Unnamed Tributary to Owl Creek	Unnamed	0.18
Tripp	555.68	Unnamed Tributary to Owl Creek	Unnamed	0.17
Tripp	555.68	Unnamed Tributary to Owl Creek	Unnamed	0.11
Tripp	555.68	Unnamed Tributary to Owl Creek	Unnamed	0.08
Tripp	555.87	Unnamed Tributary to Owl Creek	Unnamed	0.48
Tripp	555.87	Unnamed Tributary to Owl Creek	Unnamed	0.37
Tripp	555.87	Unnamed Tributary to Owl Creek	Unnamed	0.20
Tripp	555.87	Unnamed Tributary to Owl Creek	Unnamed	0.18
Tripp	555.87	Unnamed Tributary to Owl Creek	Unnamed	0.17
Tripp	555.87	Unnamed Tributary to Owl Creek	Unnamed	0.11
Tripp	555.87	Unnamed Tributary to Owl Creek	Unnamed	0.08
Tripp	557.59	Unnamed Tributary to Owl Creek	Unnamed	0.48
Tripp	557.59	Unnamed Tributary to Owl Creek	Unnamed	0.20
Tripp	557.59	Unnamed Tributary to Owl Creek	Unnamed	0.18
Tripp	557.59	Unnamed Tributary to Owl Creek	Unnamed	0.11
Tripp	557.59	Unnamed Tributary to Owl Creek	Unnamed	0.10

Table 9 Waterbodies within 10 Miles Downstream of Proposed Water Crossings in South Dakota

County	Approximate Milepost	Stream Crossing Name at Point of Crossing [a]	Downstream Waterbody Name [a]	Downstream Waterbody Size (acres) [a]
Tripp	557.59	Unnamed Tributary to Owl Creek	Unnamed	0.08
Tripp	561.73	Unnamed Tributary to Owl Creek	Unnamed	0.18
Tripp	561.73	Unnamed Tributary to Owl Creek	Unnamed	0.14
Tripp	561.73	Unnamed Tributary to Owl Creek	Unnamed	0.14
Tripp	561.73	Unnamed Tributary to Owl Creek	Unnamed	0.11
Tripp	564.63	Hollow Creek	Unnamed	0.20
Tripp	564.63	Hollow Creek	Unnamed	0.14
Tripp	564.63	Hollow Creek	Unnamed	0.10
Tripp	564.83	Unnamed Tributary to Hollow Creek	Unnamed	0.20
Tripp	564.83	Unnamed Tributary to Hollow Creek	Unnamed	0.14
Tripp	564.83	Unnamed Tributary to Hollow Creek	Unnamed	0.10
Tripp	565.03	Unnamed Tributary to Hollow Creek	Unnamed	0.20
Tripp	565.03	Unnamed Tributary to Hollow Creek	Unnamed	0.14
Tripp	565.03	Unnamed Tributary to Hollow Creek	Unnamed	0.10
Tripp	567.53	Unnamed Tributary to Dog Ear Creek	Unnamed	0.59
Tripp	567.53	Unnamed Tributary to Dog Ear Creek	Unnamed	0.45
Tripp	567.63	Unnamed Tributary to Dog Ear Creek	Unnamed	0.59
Tripp	567.63	Unnamed Tributary to Dog Ear Creek	Unnamed	0.45
Tripp	569.87	Unnamed Tributary to Dog Ear Creek	Unnamed	0.34
Tripp	569.87	Unnamed Tributary to Dog Ear Creek	Unnamed	0.09
Tripp	572.03	Unnamed Tributary to Mud Creek	Unnamed	1.15
Tripp	572.49	Unnamed Tributary to Mud Creek	Unnamed	1.15
Tripp	572.49	Unnamed Tributary to Mud Creek	Unnamed	0.11
Tripp	576.95	Sand Creek	Unnamed	0.21
Tripp	576.95	Sand Creek	Unnamed	0.21
Tripp	576.95	Sand Creek	Unnamed	0.18
Tripp	576.95	Sand Creek	Unnamed	0.14
Tripp	576.95	Sand Creek	Unnamed	0.14
Tripp	576.95	Sand Creek	Unnamed	0.13
Tripp	576.95	Sand Creek	Unnamed	0.09
Tripp	576.95	Sand Creek	Unnamed	0.05
Tripp	580.89	Ponca Creek	Unnamed	0.37
Tripp	580.89	Ponca Creek	Unnamed	0.29
Tripp	580.89	Ponca Creek	Unnamed	0.13
Tripp	581.02	Unnamed Tributary to Ponca Creek	Unnamed	0.37
Tripp	581.02	Unnamed Tributary to Ponca Creek	Unnamed	0.29
Tripp	581.02	Unnamed Tributary to Ponca Creek	Unnamed	0.13
Tripp	584.33	Unnamed Tributary to Ponca Creek	Unnamed	0.36
Tripp	584.48	Unnamed Tributary to Ponca Creek	Unnamed	0.36
Tripp	585.35	Unnamed Tributary to Ponca Creek	Unnamed	0.36
Tripp	592.75	Unnamed Tributary to Lute Creek	Unnamed	0.72
Tripp	598.62	Unnamed Tributary to Buffalo Creek	Unnamed	0.66

Table Notes:

[a] GIS data source for waterbody names and size is from the 2012 National Hydrography Dataset (NHD). Accessed on Sept. 17, 2012; ftp://nhdftp.usgs.gov/DataSets/Staged/States/FileGDB/HighResolution/.

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Phillips	1.03	154.3	PEM	Desktop	NWI
Phillips	1.08	10.6	PEM	Desktop	NWI
Phillips	1.08	329.6	PEM	Desktop	Keystone
Phillips	1.15	7.7	Open Water	Desktop	Keystone
Phillips	1.36	5.1	Open Water	Desktop	Keystone
Phillips	1.36	72.6	PEM	Desktop	NWI
Phillips	1.37	42.6	PEM	Desktop	NWI
Phillips	1.38	4.2	Open Water	Desktop	Keystone
Phillips	1.70	12.2	Open Water	Desktop	Keystone
Phillips	2.30	3.9	Open Water	Desktop	Keystone
Phillips	2.48	7.2	Open Water	Desktop	Keystone
Phillips	2.81	133.4	PEM	Desktop	NWI
Phillips	3.15	4.6	Open Water	Desktop	Keystone
Phillips	4.61	32.8	PEM	Desktop	NWI
Phillips	5.31	5.3	Open Water	Desktop	Keystone
Phillips	5.32	4.3	Open Water	Desktop	Keystone
Phillips	5.32	6.5	Open Water	Desktop	Keystone
Phillips	5.45	87.8	PEM	Desktop	NWI
Phillips	5.93	6.3	Open Water	Desktop	Keystone
Phillips	5.94	3.4	Open Water	Desktop	Keystone
Phillips	5.95	126.2	PEM	Desktop	NWI
Phillips	5.95	44.8	PEM	Desktop	NWI
Phillips	6.51	68.1	PEM	Desktop	NWI
Phillips	6.89	140.7	PEM	Desktop	GAP2010
Phillips	7.22	63.2	PEM	Desktop	NWI
Phillips	7.29	5.7	Open Water	Desktop	Keystone
Phillips	7.43	6.2	Open Water	Desktop	Keystone
Phillips	7.74	61.5	Open Water	Desktop	Keystone
Phillips	8.18	8.9	Open Water	Desktop	NWI
Phillips	8.46	28.6	Open Water	Desktop	NWI
Phillips	9.04	46.8	Open Water	Desktop	Keystone
Phillips	9.05	3.7	Open Water	Desktop	Keystone
Phillips	9.11	5.0	Open Water	Desktop	Keystone
Phillips	9.12	4.4	Open Water	Desktop	Keystone
Phillips	9.59	2.3	Open Water	Desktop	Keystone
Phillips	10.37	31.1	Open Water	Desktop	Keystone
Phillips	10.73	16.2	Open Water	Desktop	Keystone
Phillips	11.26	17.3	Open Water	Desktop	Keystone
Phillips	11.67	48.7	Open Water	Desktop	Keystone
Phillips	11.88	48.3	Open Water	Desktop	Keystone
Phillips	12.00	36.2	Open Water	Desktop	Keystone
Phillips	13.74	7.7	Open Water	Desktop	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Phillips	13.82	5.9	Open Water	Desktop	NWI
Phillips	14.01	23.7	Open Water	Desktop	Keystone
Phillips	14.24	3.3	Open Water	Desktop	Keystone
Phillips	14.63	5.4	Open Water	Desktop	Keystone
Phillips	14.64	6.2	Open Water	Desktop	Keystone
Phillips	14.99	32.4	Open Water	Desktop	Keystone
Phillips	15.16	83.1	PEM	Desktop	NWI
Phillips	15.68	2.6	Open Water	Desktop	Keystone
Phillips	16.43	271.2	PEM	Desktop	GAP2010
Phillips	16.87	172.0	PEM	Desktop	NWI
Phillips	16.96	63.1	Open Water	Desktop	Keystone
Phillips	16.97	22.1	Open Water	Desktop	Keystone
Phillips	17.02	46.8	Open Water	Desktop	Keystone
Phillips	17.89	22.5	Open Water	Desktop	Keystone
Phillips	17.92	52.6	Open Water	Desktop	Keystone
Phillips	18.09	34.7	Open Water	Desktop	Keystone
Phillips	18.35	73.0	Open Water	Desktop	Keystone
Phillips	18.41	23.0	Open Water	Desktop	Keystone
Phillips	18.98	27.5	Open Water	Desktop	Keystone
Phillips	19.18	74.5	Open Water	Desktop	Keystone
Phillips	22.16	17.4	Open Water	Desktop	Keystone
Phillips	22.32	24.2	Open Water	Desktop	Keystone
Phillips	22.70	2.3	Open Water	Desktop	Keystone
Phillips	22.74	11.5	PSS	Desktop	Keystone
Phillips	23.69	109.8	Open Water	Field Survey	Keystone
Phillips	23.81	318.0	PSS	Field Survey	Keystone
Valley	24.94	928.5	PEM	Field Survey	Keystone
Valley	25.27	117.6	PSS	Desktop	NLCD2006
Valley	25.28	35.6	PEM	Field Survey	Keystone
Valley	25.30	12.7	Open Water	Desktop	Keystone
Valley	25.36	601.6	PSS	Desktop	NLCD2006
Valley	25.54	5.8	Open Water	Desktop	Keystone
Valley	25.56	1.9	Open Water	Desktop	Keystone
Valley	25.57	42.8	Open Water	Desktop	Keystone
Valley	25.57	117.4	Open Water	Desktop	NWI
Valley	26.04	70.7	Open Water	Desktop	Keystone
Valley	26.80	39.6	Open Water	Desktop	Keystone
Valley	26.91	5.2	Open Water	Desktop	Keystone
Valley	26.93	28.8	Open Water	Desktop	Keystone
Valley	27.01	13.2	Open Water	Desktop	Keystone
Valley	28.66	53.5	Open Water	Desktop	Keystone
Valley	29.55	2.4	Open Water	Desktop	Keystone
Valley	30.31	15.8	Open Water	Desktop	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Valley	32.26	6.5	Open Water	Desktop	Keystone
Valley	32.31	41.2	Open Water	Desktop	Keystone
Valley	32.48	21.9	Open Water	Desktop	Keystone
Valley	33.01	11.7	Open Water	Desktop	Keystone
Valley	33.07	52.3	Open Water	Desktop	Keystone
Valley	34.55	60.9	Open Water	Desktop	Keystone
Valley	34.87	309.8	PSS	Desktop	NLCD2006
Valley	35.19	44.9	Open Water	Desktop	Keystone
Valley	35.36	106.1	PEM	Desktop	NWI
Valley	35.40	25.6	PSS	Desktop	NLCD2006
Valley	35.95	143.3	PSS	Desktop	NLCD2006
Valley	37.83	14.8	Open Water	Desktop	NWI
Valley	37.98	49.9	Open Water	Field Survey	Keystone
Valley	38.96	41.8	Open Water	Desktop	NWI
Valley	38.98	61.9	Open Water	Desktop	Keystone
Valley	39.01	47.3	Open Water	Desktop	Keystone
Valley	39.01	5.7	Open Water	Desktop	Keystone
Valley	39.02	42.5	Open Water	Desktop	Keystone
Valley	40.24	25.4	Open Water	Desktop	Keystone
Valley	40.39	8.3	Open Water	Desktop	Keystone
Valley	40.73	5.4	Open Water	Desktop	Keystone
Valley	40.78	58.4	Open Water	Desktop	Keystone
Valley	40.92	29.8	Open Water	Desktop	Keystone
Valley	41.20	4.6	Open Water	Desktop	Keystone
Valley	41.31	4.0	Open Water	Desktop	Keystone
Valley	41.58	6.6	Open Water	Field Survey	Keystone
Valley	42.41	3.4	Open Water	Desktop	Keystone
Valley	43.24	10.6	Open Water	Desktop	Keystone
Valley	43.67	1.7	Open Water	Field Survey	Keystone
Valley	44.10	37.0	Open Water	Field Survey	Keystone
Valley	44.21	7.0	Open Water	Desktop	Keystone
Valley	44.44	26.3	Open Water	Desktop	Keystone
Valley	44.91	18.7	Open Water	Desktop	Keystone
Valley	44.99	14.3	Open Water	Desktop	Keystone
Valley	47.18	4.8	Open Water	Desktop	Keystone
Valley	47.80	5.4	Open Water	Desktop	Keystone
Valley	48.14	6.5	Open Water	Desktop	Keystone
Valley	48.20	28.4	Open Water	Field Survey	Keystone
Valley	49.14	19.0	Open Water	Desktop	Keystone
Valley	49.63	18.1	Open Water	Field Survey	Keystone
Valley	49.74	36.1	Open Water	Desktop	Keystone
Valley	49.77	12.3	Open Water	Desktop	Keystone
Valley	49.81	44.2	Open Water	Desktop	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Valley	51.17	9.0	Open Water	Field Survey	Keystone
Valley	51.31	22.0	Open Water	Desktop	Keystone
Valley	51.40	3.3	Open Water	Field Survey	Keystone
Valley	51.47	6.7	Open Water	Field Survey	Keystone
Valley	52.35	31.1	Open Water	Desktop	Keystone
Valley	52.46	42.0	Open Water	Field Survey	Keystone
Valley	53.38	5.6	Open Water	Desktop	Keystone
Valley	54.02	18.3	Open Water	Desktop	Keystone
Valley	55.10	64.6	Open Water	Desktop	Keystone
Valley	55.34	45.8	Open Water	Desktop	Keystone
Valley	55.55	91.8	Open Water	Desktop	Keystone
Valley	56.00	48.9	Open Water	Desktop	Keystone
Valley	56.15	8.0	Open Water	Field Survey	Keystone
Valley	56.29	3.8	Open Water	Desktop	Keystone
Valley	56.32	4.1	Open Water	Desktop	Keystone
Valley	56.59	17.3	Open Water	Desktop	Keystone
Valley	57.03	10.9	Open Water	Desktop	Keystone
Valley	57.12	28.8	Open Water	Desktop	Keystone
Valley	57.16	2.8	Open Water	Desktop	Keystone
Valley	57.58	4.0	Open Water	Desktop	Keystone
Valley	57.62	4.2	Open Water	Desktop	Keystone
Valley	57.79	9.0	Open Water	Field Survey	Keystone
Valley	58.02	30.1	Open Water	Desktop	Keystone
Valley	58.41	15.6	Open Water	Field Survey	Keystone
Valley	58.84	51.2	Open Water	Desktop	Keystone
Valley	59.38	14.1	Open Water	Desktop	Keystone
Valley	59.43	3.2	Open Water	Desktop	Keystone
Valley	59.90	6.8	Open Water	Desktop	Keystone
Valley	61.74	36.6	Open Water	Desktop	Keystone
Valley	62.79	54.5	Open Water	Desktop	Keystone
Valley	63.05	4.1	Open Water	Desktop	Keystone
Valley	64.41	4.8	Open Water	Desktop	Keystone
Valley	65.51	6.5	Open Water	Field Survey	Keystone
Valley	65.78	11.1	Open Water	Desktop	Keystone
Valley	66.00	621.4	PSS	Desktop	NLCD2006
Valley	67.10	10.6	Open Water	Field Survey	Keystone
Valley	67.91	7.7	Open Water	Desktop	Keystone
Valley	69.48	23.6	Open Water	Desktop	Keystone
Valley	71.75	28.7	Open Water	Desktop	Keystone
Valley	71.80	147.5	Open Water	Desktop	Keystone
Valley	71.81	5.4	Open Water	Desktop	Keystone
Valley	71.86	5.8	Open Water	Desktop	Keystone
Valley	71.86	4.6	Open Water	Desktop	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Valley	72.29	135.6	PEM	Desktop	Keystone
Valley	73.66	20.2	PEM	Desktop	Keystone
Valley	75.21	16.7	Open Water	Desktop	Keystone
Valley	75.66	2.5	Open Water	Desktop	Keystone
Valley	76.53	956.9	PEM	Desktop	NWI
Valley	77.46	7.6	Open Water	Desktop	Keystone
Valley	78.55	2.0	PSS	Desktop	NLCD2006
Valley	78.58	7.3	PSS	Desktop	NLCD2006
Valley	78.58	11.4	PSS	Desktop	NLCD2006
Valley	78.82	7.8	Open Water	Desktop	NWI
Valley	79.38	113.3	Open Water	Field Survey	Keystone
Valley	80.16	4.0	Open Water	Field Survey	Keystone
Valley	83.22	3.2	Open Water	Desktop	Keystone
Valley	83.27	4.1	Open Water	Desktop	Keystone
Valley	83.40	6.0	Open Water	Desktop	Keystone
Valley	83.40	5.6	Open Water	Desktop	Keystone
Valley	83.40	15.3	Open Water	Field Survey	Keystone
Valley	83.43	9.9	Open Water	Desktop	Keystone
Valley	83.46	15.2	Open Water	Desktop	Keystone
Valley	83.88	27.0	Open Water	Field Survey	Keystone
Valley	83.89	22.1	Open Water	Desktop	Keystone
Valley	84.15	45.0	Open Water	Desktop	Keystone
Valley	84.75	12.9	Open Water	Desktop	Keystone
Valley	84.96	10.7	Open Water	Desktop	Keystone
Valley	84.96	21.2	Open Water	Desktop	Keystone
Valley	85.07	20.5	Open Water	Desktop	Keystone
Valley	85.49	6.4	Open Water	Desktop	Keystone
Valley	87.71	5.9	Open Water	Field Survey	Keystone
Valley	88.35	18.2	Open Water	Desktop	Keystone
Valley	88.56	9.2	Open Water	Field Survey	Keystone
Valley	88.58	120.6	PSS	Desktop	NLCD2006
Valley	88.82	1024.9	Open Water	Field Survey	Keystone
McCone	88.83	74.8	Open Water	Desktop	NWI
McCone	89.10	312.6	PSS	Desktop	NLCD2006
McCone	89.30	230.8	PSS	Desktop	NLCD2006
McCone	89.31	651.1	PSS	Desktop	NLCD2006
McCone	89.42	234.3	PSS	Desktop	NLCD2006
McCone	89.53	5.8	Open Water	Desktop	Keystone
McCone	89.55	12.6	Open Water	Desktop	Keystone
McCone	89.74	16.0	Open Water	Field Survey	Keystone
McCone	89.88	10.9	Open Water	Field Survey	Keystone
McCone	90.26	14.4	Open Water	Field Survey	Keystone
McCone	90.47	27.5	Open Water	Field Survey	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
McCone	90.61	3.0	Open Water	Desktop	Keystone
McCone	93.49	2.3	Open Water	Desktop	Keystone
McCone	94.02	33.6	Open Water	Field Survey	Keystone
McCone	94.51	7.7	Open Water	Desktop	Keystone
McCone	94.67	18.1	Open Water	Field Survey	Keystone
McCone	95.54	3.8	Open Water	Desktop	Keystone
McCone	95.76	18.4	Open Water	Desktop	Keystone
McCone	96.10	25.8	Open Water	Desktop	Keystone
McCone	96.20	21.9	Open Water	Desktop	Keystone
McCone	96.33	35.5	Open Water	Desktop	Keystone
McCone	97.54	39.0	Open Water	Desktop	Keystone
McCone	97.58	19.0	Open Water	Field Survey	Keystone
McCone	97.97	8.0	Open Water	Field Survey	Keystone
McCone	99.54	22.1	Open Water	Desktop	Keystone
McCone	99.59	61.5	Open Water	Desktop	Keystone
McCone	100.05	18.9	Open Water	Desktop	Keystone
McCone	100.50	31.7	Open Water	Desktop	Keystone
McCone	101.53	30.6	Open Water	Field Survey	Keystone
McCone	102.31	2.6	Open Water	Desktop	Keystone
McCone	102.35	5.0	Open Water	Desktop	Keystone
McCone	102.93	48.8	Open Water	Desktop	Keystone
McCone	103.38	14.7	Open Water	Desktop	Keystone
McCone	103.44	85.0	Open Water	Field Survey	Keystone
McCone	103.83	31.7	Open Water	Desktop	Keystone
McCone	106.26	75.6	Open Water	Desktop	Keystone
McCone	106.27	17.7	Open Water	Field Survey	Keystone
McCone	106.54	22.2	Open Water	Desktop	Keystone
McCone	106.96	2.6	Open Water	Desktop	Keystone
McCone	107.59	4.9	Open Water	Desktop	Keystone
McCone	108.23	4.3	Open Water	Desktop	Keystone
McCone	108.45	5.4	Open Water	Field Survey	Keystone
McCone	108.84	6.8	Open Water	Field Survey	Keystone
McCone	109.21	29.5	Open Water	Desktop	Keystone
McCone	111.44	21.6	Open Water	Desktop	Keystone
McCone	111.49	17.7	Open Water	Desktop	Keystone
McCone	111.52	33.1	Open Water	Desktop	Keystone
McCone	111.60	48.5	Open Water	Desktop	Keystone
McCone	112.09	13.6	Open Water	Field Survey	Keystone
McCone	112.40	3.2	Open Water	Desktop	Keystone
McCone	112.41	47.6	Open Water	Field Survey	Keystone
McCone	112.61	31.2	Open Water	Desktop	Keystone
McCone	112.83	7.6	Open Water	Desktop	Keystone
McCone	113.09	63.2	PEM	Desktop	NWI

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
McCone	113.13	9.4	Open Water	Field Survey	Keystone
McCone	114.76	23.3	PSS	Desktop	NLCD2006
McCone	115.25	113.1	PSS	Desktop	NLCD2006
McCone	116.50	45.6	Open Water	Desktop	Keystone
McCone	116.82	14.1	Open Water	Desktop	Keystone
McCone	117.21	3.0	Open Water	Desktop	Keystone
McCone	118.22	24.0	Open Water	Desktop	Keystone
McCone	119.61	2.2	Open Water	Desktop	Keystone
McCone	119.61	16.6	Open Water	Field Survey	Keystone
McCone	119.61	8.7	Open Water	Desktop	Keystone
McCone	119.62	108.4	Open Water	Desktop	Keystone
McCone	119.62	21.7	Open Water	Desktop	Keystone
McCone	119.63	34.1	Open Water	Desktop	Keystone
McCone	119.84	3.5	Open Water	Desktop	Keystone
McCone	119.89	22.9	PEM	Desktop	NWI
McCone	119.94	9.7	Open Water	Field Survey	Keystone
McCone	120.42	81.6	PEM	Desktop	NLCD2006
McCone	120.55	14.8	PEM	Desktop	NLCD2006
McCone	120.55	181.0	PEM	Desktop	NLCD2006
McCone	121.25	19.0	Open Water	Desktop	Keystone
McCone	121.41	11.4	Open Water	Desktop	Keystone
McCone	121.52	21.2	PEM	Desktop	NWI
McCone	122.08	2.8	Open Water	Desktop	Keystone
McCone	122.08	13.2	Open Water	Desktop	Keystone
McCone	122.59	0.1	PEM	Desktop	NLCD2006
McCone	123.64	13.8	Open Water	Desktop	Keystone
McCone	123.65	2.0	Open Water	Desktop	Keystone
McCone	123.65	13.2	Open Water	Desktop	Keystone
McCone	124.26	30.8	Open Water	Desktop	Keystone
McCone	124.29	35.8	PEM	Desktop	NWI
McCone	124.36	22.3	Open Water	Desktop	Keystone
McCone	124.37	54.1	PEM	Desktop	GAP2010
McCone	124.38	10.3	Open Water	Desktop	Keystone
McCone	124.44	17.0	Open Water	Desktop	Keystone
McCone	124.56	12.3	PEM	Desktop	NWI
McCone	125.81	17.5	Open Water	Field Survey	Keystone
McCone	125.85	16.2	Open Water	Desktop	Keystone
McCone	125.94	31.8	Open Water	Desktop	Keystone
McCone	125.95	2.8	Open Water	Desktop	Keystone
McCone	126.41	1.8	Open Water	Desktop	Keystone
McCone	126.92	17.3	Open Water	Desktop	Keystone
McCone	127.21	5.1	Open Water	Desktop	Keystone
McCone	127.47	2.2	Open Water	Desktop	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
McCone	127.47	30.9	Open Water	Desktop	Keystone
McCone	127.48	5.7	Open Water	Desktop	Keystone
McCone	128.02	20.0	Open Water	Field Survey	Keystone
McCone	128.09	243.3	PEM	Desktop	NWI
McCone	128.40	11.8	Open Water	Desktop	Keystone
McCone	128.95	51.2	Open Water	Desktop	Keystone
McCone	128.95	24.8	Open Water	Field Survey	Keystone
McCone	129.60	26.6	PEM	Field Survey	Keystone
McCone	129.69	14.5	Open Water	Field Survey	Keystone
McCone	130.94	14.7	Open Water	Desktop	Keystone
McCone	131.57	14.7	PEM	Field Survey	Keystone
McCone	132.07	50.3	PEM	Field Survey	Keystone
McCone	132.09	28.5	Open Water	Desktop	Keystone
McCone	132.13	21.1	Open Water	Desktop	Keystone
McCone	132.33	18.4	Open Water	Desktop	Keystone
McCone	132.66	15.7	Open Water	Field Survey	Keystone
McCone	134.09	24.2	Open Water	Desktop	Keystone
McCone	135.03	12.2	Open Water	Desktop	Keystone
McCone	135.06	35.4	Open Water	Desktop	NWI
McCone	135.07	7.0	Open Water	Desktop	Keystone
McCone	135.55	71.5	Open Water	Field Survey	Keystone
McCone	136.59	103.5	Open Water	Desktop	NWI
McCone	137.75	15.2	Open Water	Desktop	Keystone
McCone	137.75	12.9	Open Water	Desktop	Keystone
McCone	138.43	6.4	Open Water	Desktop	Keystone
McCone	139.47	25.3	Open Water	Field Survey	Keystone
McCone	139.93	3.4	Open Water	Desktop	Keystone
McCone	140.38	38.2	Open Water	Desktop	Keystone
McCone	141.45	12.2	Open Water	Desktop	Keystone
McCone	142.20	4.4	Open Water	Desktop	Keystone
McCone	142.64	23.5	Open Water	Field Survey	Keystone
Dawson	142.88	11.3	Open Water	Desktop	Keystone
Dawson	144.58	5.6	Open Water	Desktop	Keystone
Dawson	145.03	20.4	Open Water	Desktop	Keystone
Dawson	148.51	10.9	Open Water	Desktop	Keystone
Dawson	148.52	10.5	Open Water	Field Survey	Keystone
Dawson	148.53	50.0	Open Water	Field Survey	Keystone
Dawson	150.12	12.9	Open Water	Desktop	Keystone
Dawson	150.70	135.3	Open Water	Desktop	Keystone
Dawson	151.68	73.0	Open Water	Desktop	Keystone
Dawson	151.82	25.5	Open Water	Desktop	Keystone
Dawson	154.49	9.2	Open Water	Desktop	Keystone
Dawson	154.64	12.1	Open Water	Field Survey	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Dawson	154.65	29.5	PSS	Desktop	NLCD2006
Dawson	155.63	30.2	Open Water	Desktop	Keystone
Dawson	155.66	12.4	Open Water	Desktop	Keystone
Dawson	156.45	19.4	Open Water	Desktop	Keystone
Dawson	157.23	21.6	Open Water	Desktop	Keystone
Dawson	157.50	32.1	Open Water	Field Survey	Keystone
Dawson	157.65	21.3	Open Water	Desktop	Keystone
Dawson	157.85	14.7	Open Water	Desktop	Keystone
Dawson	158.36	20.1	Open Water	Desktop	Keystone
Dawson	158.36	31.0	Open Water	Desktop	Keystone
Dawson	158.36	159.6	PEM	Desktop	NLCD2006
Dawson	159.32	26.4	Open Water	Desktop	Keystone
Dawson	160.23	197.2	PSS	Desktop	NLCD2006
Dawson	161.63	168.8	PSS	Desktop	NLCD2006
Dawson	162.35	195.2	PSS	Desktop	NLCD2006
Dawson	163.55	219.9	PSS	Desktop	NLCD2006
Dawson	164.99	59.4	Open Water	Field Survey	Keystone
Dawson	165.03	181.5	PSS	Desktop	NLCD2006
Dawson	165.51	8.0	Open Water	Desktop	Keystone
Dawson	165.74	42.1	Open Water	Desktop	Keystone
Dawson	166.22	27.7	Open Water	Desktop	Keystone
Dawson	166.42	34.3	PSS	Desktop	NLCD2006
Dawson	168.08	16.5	Open Water	Desktop	Keystone
Dawson	168.31	15.1	Open Water	Desktop	Keystone
Dawson	168.55	34.7	Open Water	Desktop	Keystone
Dawson	170.22	21.5	Open Water	Desktop	Keystone
Dawson	170.26	57.1	Open Water	Desktop	Keystone
Dawson	173.09	13.8	Open Water	Desktop	Keystone
Dawson	173.31	26.5	Open Water	Desktop	Keystone
Dawson	176.93	38.1	Open Water	Desktop	Keystone
Dawson	176.98	15.2	Open Water	Desktop	Keystone
Dawson	177.04	19.6	Open Water	Desktop	Keystone
Dawson	177.23	31.4	Open Water	Desktop	Keystone
Dawson	177.31	12.0	Open Water	Desktop	Keystone
Dawson	177.32	17.4	Open Water	Desktop	Keystone
Dawson	177.34	3.4	Open Water	Desktop	Keystone
Dawson	177.52	9.8	Open Water	Desktop	Keystone
Dawson	178.35	19.7	Open Water	Desktop	Keystone
Dawson	178.98	19.7	Open Water	Desktop	Keystone
Dawson	179.26	17.3	Open Water	Desktop	Keystone
Dawson	179.27	19.6	Open Water	Desktop	Keystone
Dawson	180.41	15.1	Open Water	Desktop	Keystone
Dawson	181.57	37.4	Open Water	Desktop	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Dawson	181.65	10.3	Open Water	Desktop	Keystone
Dawson	181.73	5.2	Open Water	Field Survey	Keystone
Dawson	182.02	3.6	Open Water	Desktop	Keystone
Dawson	182.28	39.1	Open Water	Desktop	Keystone
Dawson	182.83	5.9	PSS	Desktop	NLCD2006
Dawson	183.46	8.4	Open Water	Desktop	NWI
Dawson	183.72	45.4	Open Water	Field Survey	Keystone
Dawson	183.91	19.2	Open Water	Field Survey	Keystone
Dawson	184.12	22.2	Open Water	Desktop	Keystone
Dawson	184.29	306.9	PSS	Desktop	NLCD2006
Dawson	186.81	44.7	Open Water	Desktop	Keystone
Dawson	187.12	36.0	Open Water	Field Survey	Keystone
Dawson	187.27	14.2	Open Water	Field Survey	Keystone
Dawson	187.37	18.0	Open Water	Desktop	Keystone
Dawson	187.61	3.5	PSS	Desktop	NLCD2006
Dawson	187.69	58.8	Open Water	Field Survey	Keystone
Dawson	187.71	173.3	PEM	Desktop	Keystone
Dawson	188.02	156.3	PSS	Desktop	NLCD2006
Dawson	188.06	717.6	Open Water	Field Survey	Keystone
Prairie	190.20	19.5	Open Water	Desktop	Keystone
Prairie	191.68	9.1	Open Water	Desktop	Keystone
Prairie	194.80	13.5	Open Water	Desktop	Keystone
Prairie	195.19	36.6	Open Water	Desktop	Keystone
Prairie	196.02	16.9	Open Water	Field Survey	Keystone
Prairie	196.03	10.5	Open Water	Desktop	Keystone
Prairie	196.13	7.5	Open Water	Desktop	Keystone
Prairie	196.35	5.3	Open Water	Desktop	Keystone
Prairie	196.51	7.0	Open Water	Desktop	NWI
Prairie	197.04	37.1	Open Water	Desktop	Keystone
Prairie	197.06	19.5	Open Water	Desktop	Keystone
Prairie	197.06	18.0	PEM	Desktop	NWI
Prairie	197.23	33.6	Open Water	Desktop	Keystone
Prairie	197.23	14.9	Open Water	Desktop	Keystone
Prairie	197.75	11.0	Open Water	Desktop	Keystone
Prairie	197.79	28.6	Open Water	Desktop	Keystone
Prairie	197.80	30.2	Open Water	Desktop	Keystone
Prairie	197.81	44.4	Open Water	Field Survey	Keystone
Prairie	197.85	48.5	PEM	Desktop	NWI
Prairie	198.04	105.5	PSS	Desktop	NLCD2006
Prairie	199.92	28.8	PEM	Desktop	NWI
Prairie	200.25	12.0	Open Water	Field Survey	Keystone
Prairie	200.36	38.7	PSS	Desktop	NLCD2006
Prairie	200.42	24.4	Open Water	Desktop	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Prairie	201.77	23.3	Open Water	Desktop	Keystone
Prairie	201.87	26.8	PEM	Desktop	NWI
Prairie	202.46	24.4	Open Water	Desktop	Keystone
Prairie	202.54	213.9	PEM	Desktop	NWI
Prairie	203.63	12.3	Open Water	Desktop	Keystone
Prairie	203.63	42.8	Open Water	Desktop	Keystone
Prairie	204.34	16.2	Open Water	Desktop	Keystone
Prairie	204.35	31.7	PEM	Desktop	NWI
Prairie	206.47	19.3	PEM	Field Survey	Keystone
Prairie	207.24	51.9	Open Water	Desktop	Keystone
Prairie	207.74	5.9	Open Water	Field Survey	Keystone
Prairie	209.27	22.2	PEM	Desktop	NWI
Prairie	209.65	13.9	Open Water	Desktop	Keystone
Prairie	209.97	13.9	Open Water	Desktop	Keystone
Prairie	209.98	12.6	Open Water	Desktop	Keystone
Prairie	210.98	31.8	Open Water	Desktop	Keystone
Prairie	211.00	15.5	Open Water	Desktop	Keystone
Fallon	211.00	44.2	Open Water	Desktop	Keystone
Fallon	211.01	19.9	Open Water	Desktop	Keystone
Fallon	211.04	32.2	Open Water	Desktop	Keystone
Fallon	213.54	5.4	PEM	Desktop	NWI
Fallon	213.55	25.3	Open Water	Desktop	Keystone
Fallon	214.21	390.8	PEM	Desktop	NLCD2006
Fallon	214.31	227.6	PEM	Desktop	NLCD2006
Fallon	214.31	33.8	PEM	Field Survey	Keystone
Fallon	214.31	5.2	PEM	Desktop	NWI
Fallon	214.99	16.6	Open Water	Desktop	Keystone
Fallon	215.75	137.6	PEM	Desktop	NLCD2006
Fallon	216.42	29.0	Open Water	Desktop	Keystone
Fallon	216.43	22.3	Open Water	Desktop	Keystone
Fallon	216.43	15.1	PFO	Desktop	NWI
Fallon	216.44	129.9	Open Water	Desktop	Keystone
Fallon	216.97	49.0	Open Water	Desktop	Keystone
Fallon	216.97	82.0	PSS	Desktop	NLCD2006
Fallon	217.30	29.2	PEM	Desktop	NWI
Fallon	218.02	21.6	Open Water	Desktop	Keystone
Fallon	218.36	22.8	Open Water	Desktop	Keystone
Fallon	218.90	594.9	PEM	Desktop	NLCD2006
Fallon	219.45	17.0	PEM	Desktop	NWI
Fallon	221.98	14.3	Open Water	Field Survey	Keystone
Fallon	224.09	26.4	PEM	Desktop	NWI
Fallon	226.45	150.3	PEM	Desktop	NLCD2006
Fallon	228.62	281.7	PSS	Desktop	NLCD2006

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Fallon	228.63	3.3	Open Water	Desktop	Keystone
Fallon	228.64	34.6	Open Water	Field Survey	Keystone
Fallon	228.70	14.8	Open Water	Desktop	Keystone
Fallon	228.88	69.7	Open Water	Desktop	Keystone
Fallon	228.93	77.6	Open Water	Desktop	Keystone
Fallon	228.93	47.7	Open Water	Desktop	Keystone
Fallon	228.93	15.4	PEM	Desktop	NWI
Fallon	228.93	55.8	PSS	Desktop	NLCD2006
Fallon	228.94	11.2	PEM	Desktop	NWI
Fallon	229.33	51.0	Open Water	Desktop	Keystone
Fallon	229.44	20.8	Open Water	Desktop	Keystone
Fallon	229.70	47.8	PSS	Desktop	NLCD2006
Fallon	233.79	31.0	Open Water	Desktop	Keystone
Fallon	233.79	101.5	PEM	Desktop	NLCD2006
Fallon	233.82	17.6	Open Water	Desktop	Keystone
Fallon	234.74	21.0	Open Water	Field Survey	Keystone
Fallon	234.75	17.5	PEM	Desktop	NWI
Fallon	234.86	20.1	Open Water	Desktop	Keystone
Fallon	235.28	5.3	Open Water	Desktop	Keystone
Fallon	235.41	24.7	Open Water	Field Survey	Keystone
Fallon	235.41	10.9	Open Water	Desktop	Keystone
Fallon	235.41	14.9	PEM	Desktop	NWI
Fallon	235.52	18.5	Open Water	Desktop	Keystone
Fallon	235.52	7.2	Open Water	Desktop	Keystone
Fallon	237.44	35.0	Open Water	Field Survey	Keystone
Fallon	238.63	16.8	Open Water	Desktop	Keystone
Fallon	238.65	13.5	Open Water	Desktop	Keystone
Fallon	238.65	15.4	Open Water	Desktop	Keystone
Fallon	240.95	26.3	Open Water	Desktop	Keystone
Fallon	241.65	45.0	Open Water	Field Survey	Keystone
Fallon	243.49	197.6	Open Water	Field Survey	Keystone
Fallon	243.51	23.3	Open Water	Desktop	Keystone
Fallon	243.52	40.6	PEM	Desktop	NWI
Fallon	243.91	2.0	Open Water	Field Survey	Keystone
Fallon	244.82	46.6	PEM	Field Survey	Keystone
Fallon	244.82	9.5	PEM	Desktop	NWI
Fallon	245.06	16.3	Open Water	Desktop	Keystone
Fallon	245.08	32.5	PEM	Desktop	NWI
Fallon	245.09	23.4	PEM	Field Survey	Keystone
Fallon	246.28	13.9	Open Water	Field Survey	Keystone
Fallon	246.65	29.2	PEM	Desktop	NWI
Fallon	247.05	145.1	PEM	Desktop	NLCD2006
Fallon	247.05	9.0	PEM	Desktop	NLCD2006

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Fallon	247.05	200.6	PSS	Desktop	NLCD2006
Fallon	247.51	5.6	PEM	Desktop	NWI
Fallon	248.92	252.1	PEM	Field Survey	Keystone
Fallon	248.98	1.0	PEM	Desktop	NWI
Fallon	248.98	7.4	PEM	Desktop	NWI
Fallon	249.11	57.9	PSS	Desktop	NLCD2006
Fallon	250.43	7.0	Open Water	Desktop	Keystone
Fallon	252.13	4.3	Open Water	Field Survey	Keystone
Fallon	252.95	3.5	Open Water	Desktop	Keystone
Fallon	253.45	39.9	PEM	Field Survey	Keystone
Fallon	254.31	2.1	PEM	Desktop	NWI
Fallon	254.38	29.8	Open Water	Field Survey	Keystone
Fallon	254.84	63.4	Open Water	Desktop	Keystone
Fallon	256.10	28.9	Open Water	Desktop	Keystone
Fallon	256.19	21.6	Open Water	Desktop	Keystone
Fallon	257.44	20.2	Open Water	Desktop	Keystone
Fallon	258.07	21.8	Open Water	Desktop	Keystone
Fallon	258.07	24.6	Open Water	Desktop	Keystone
Fallon	258.07	12.5	PEM	Desktop	NWI
Fallon	259.88	58.1	PEM	Desktop	NWI
Fallon	260.19	75.1	PEM	Desktop	Keystone
Fallon	260.19	161.6	PEM	Desktop	NWI
Fallon	260.20	5.1	Open Water	Desktop	Keystone
Fallon	261.07	18.8	Open Water	Desktop	Keystone
Fallon	261.08	22.3	Open Water	Desktop	Keystone
Fallon	261.08	78.8	PEM	Desktop	NWI
Fallon	261.08	30.6	PEM	Desktop	NWI
Fallon	261.09	8.8	PEM	Desktop	GAP2010
Fallon	261.12	250.9	PEM	Desktop	NWI
Fallon	261.16	48.6	PEM	Desktop	GAP2010
Fallon	261.69	10.5	Open Water	Desktop	Keystone
Fallon	261.69	12.9	PEM	Desktop	GAP2010
Fallon	261.70	12.0	Open Water	Desktop	Keystone
Fallon	261.70	75.1	PEM	Desktop	NWI
Fallon	261.74	20.8	Open Water	Field Survey	Keystone
Fallon	261.74	22.1	Open Water	Field Survey	Keystone
Fallon	262.21	15.6	Open Water	Desktop	Keystone
Fallon	262.23	17.3	Open Water	Desktop	Keystone
Fallon	264.04	25.7	Open Water	Desktop	Keystone
Fallon	264.20	16.9	Open Water	Desktop	Keystone
Fallon	264.21	25.1	PEM	Field Survey	Keystone
Fallon	265.33	4.3	Open Water	Field Survey	Keystone
Fallon	265.75	40.3	PEM	Field Survey	Keystone

Table 10 Montana Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Fallon	267.36	31.9	Open Water	Desktop	Keystone
Fallon	268.57	55.9	Open Water	Desktop	Keystone
Fallon	268.63	8.1	Open Water	Field Survey	Keystone
Fallon	270.10	14.4	Open Water	Desktop	Keystone
Fallon	270.36	28.0	Open Water	Desktop	NWI
Fallon	270.36	62.6	Open Water	Field Survey	Keystone
Fallon	270.73	38.5	Open Water	Desktop	Keystone

Table Notes:

[a] Beginning milepost is the approximate milepost location where the pipeline first intercepts the wetland.

[b] Distance crossed is the linear distance the wetland is intercepted by the pipeline imeasured in feet.

[c] Wetland type is based on Cowardin classification (Cowardin et al. 1979). PEM = palustrine emergent wetland, PSS = palustrine scrub shrub wetland, PFO = palustrine forested wetland.

[d] Survey type indicates whether wetland polygon was mapped during a field survey by Keystone or mapped using desktop methods (aerial photo interpretation or database GIS data).

[e] Source identifies what data source was used to generate the wetland data presented in this table.

Data Sources (see Section 4.4 references): TransCanada Keystone Pipeline, LP (Keystone) (exp Energy Services Inc. 2012a and 2012b) , NWI (USFWS 2012), NLCD 2006 (Fry 2011), GAP 2010 (USGS 2011).

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Keya Paha	601.1	13.9	Open Water	Desktop	Keystone
Keya Paha	601.3	24.7	Open Water	Desktop	Keystone
Keya Paha	601.8	8.1	Open Water	Desktop	Keystone
Keya Paha	602.1	78.6	PSS	Desktop	NLCD2006
Keya Paha	603.9	247.6	PEM	Desktop	Keystone
Keya Paha	604.3	100.0	PEM	Desktop	Keystone
Keya Paha	604.4	19.8	Open Water	Desktop	Keystone
Keya Paha	604.4	426.8	PEM	Desktop	Keystone
Keya Paha	605.2	309.3	PEM	Desktop	Keystone
Keya Paha	605.3	12.1	Open Water	Desktop	Keystone
Keya Paha	605.3	53.8	Open Water	Desktop	Keystone
Keya Paha	605.7	68.1	Open Water	Desktop	NWI
Keya Paha	606.2	12.8	Open Water	Desktop	Keystone
Keya Paha	606.2	126.9	PFO	Desktop	Keystone
Keya Paha	607.4	11.2	Open Water	Desktop	Keystone
Keya Paha	607.7	223.8	PFO	Desktop	Keystone
Keya Paha	607.8	129.1	PEM	Desktop	Keystone
Keya Paha	607.8	224.0	PFO	Desktop	Keystone
Keya Paha	609.4	11.9	Open Water	Desktop	Keystone
Keya Paha	610.5	238.9	PEM	Desktop	Keystone
Keya Paha	610.5	19.6	Open Water	Desktop	Keystone
Keya Paha	610.5	79.7	PSS	Desktop	NLCD2006
Keya Paha	610.6	35.2	Open Water	Desktop	Keystone
Keya Paha	612.2	43.6	Open Water	Desktop	Keystone
Keya Paha	612.5	40.5	Open Water	Desktop	Keystone
Keya Paha	612.8	8.0	Open Water	Desktop	Keystone
Keya Paha	613.2	115.3	PSS	Desktop	NLCD2006
Keya Paha	613.7	13.0	Open Water	Desktop	Keystone
Keya Paha	613.7	86.2	Open Water	Desktop	Keystone
Keya Paha	613.7	20.5	Open Water	Desktop	Keystone
Boyd	613.7	180.8	PSS	Desktop	NLCD2006
Keya Paha	613.7	41.2	Open Water	Desktop	Keystone
Keya Paha	613.8	34.5	Open Water	Desktop	Keystone
Keya Paha	613.8	19.1	Open Water	Desktop	Keystone
Boyd	614.1	316.8	Open Water	Desktop	NWI
Boyd	614.8	158.6	Open Water	Desktop	Keystone
Boyd	615.1	89.1	PSS	Desktop	NLCD2006
Boyd	615.6	46.1	Open Water	Desktop	Keystone
Boyd	617.0	518.5	PEM	Desktop	GAP2010
Boyd	618.0	275.1	PEM	Desktop	Keystone
Boyd	618.0	161.8	PEM	Desktop	GAP2010
Boyd	618.1	21.5	PEM	Desktop	Keystone
Boyd	618.2	90.0	PEM	Desktop	Keystone

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Boyd	621.2	29.5	PEM	Desktop	GAP2010
Boyd	621.2	76.5	PSS	Desktop	NLCD2006
Boyd	625.0	224.0	PEM	Desktop	NLCD2006
Holt	625.1	1213.4	Open Water	Desktop	Keystone
Holt	625.1	10.0	Open Water	Desktop	Keystone
Holt	625.2	375.5	PFO	Desktop	Keystone
Holt	625.2	13.7	PEM	Desktop	Keystone
Holt	625.2	51.2	Open Water	Desktop	Keystone
Holt	625.2	85.8	PSS	Desktop	NLCD2006
Holt	625.3	11.6	Open Water	Desktop	Keystone
Holt	625.3	243.3	PEM	Desktop	NLCD2006
Holt	625.9	147.8	PEM	Desktop	NLCD2006
Holt	625.9	87.0	PEM	Desktop	NLCD2006
Holt	626.0	27.4	PEM	Desktop	NLCD2006
Holt	626.5	106.8	PEM	Desktop	NLCD2006
Holt	626.8	10.1	Open Water	Desktop	Keystone
Holt	626.8	175.1	PEM	Desktop	NLCD2006
Holt	626.8	268.6	PEM	Desktop	NLCD2006
Holt	626.8	16.8	PEM	Desktop	GAP2010
Holt	628.0	106.0	PEM	Desktop	NLCD2006
Holt	628.5	142.6	PSS	Desktop	NLCD2006
Holt	628.6	10.9	Open Water	Desktop	Keystone
Holt	628.7	221.1	PSS	Desktop	NLCD2006
Holt	628.8	21.8	Open Water	Desktop	Keystone
Holt	628.8	46.6	PEM	Desktop	NLCD2006
Holt	629.5	537.4	PEM	Desktop	GAP2010
Holt	629.8	22.8	PSS	Desktop	NLCD2006
Holt	629.9	253.5	PSS	Desktop	NLCD2006
Holt	630.0	10.6	Open Water	Desktop	Keystone
Holt	630.0	112.3	PEM	Desktop	NWI
Holt	632.7	118.0	PEM	Desktop	GAP2010
Holt	632.7	10.0	Open Water	Desktop	Keystone
Holt	632.7	10.8	Open Water	Desktop	Keystone
Holt	634.8	11.2	Open Water	Desktop	Keystone
Holt	635.1	10.5	Open Water	Desktop	Keystone
Holt	639.5	164.5	Open Water	Desktop	Keystone
Holt	639.5	21.8	Open Water	Desktop	Keystone
Holt	639.9	13.8	Open Water	Field Survey	Keystone
Holt	639.9	6.1	PEM	Field Survey	Keystone
Holt	640.0	10.9	Open Water	Desktop	Keystone
Holt	640.0	17.8	PEM	Field Survey	Keystone
Holt	640.0	10.8	Open Water	Desktop	Keystone
Holt	640.3	31.9	Open Water	Desktop	Keystone
Holt	640.9	11.9	Open Water	Desktop	Keystone
Holt	641.2	39.6	PEM	Field Survey	Keystone

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Holt	642.0	65.5	PEM	Field Survey	Keystone
Holt	642.5	12.1	Open Water	Field Survey	Keystone
Holt	646.8	50.7	PEM	Field Survey	Keystone
Holt	649.3	14.5	Open Water	Field Survey	Keystone
Holt	649.3	11.6	PEM	Desktop	NWI
Holt	649.8	50.4	PEM	Desktop	NLCD2006
Holt	652.6	30.8	Open Water	Desktop	Keystone
Holt	652.8	36.5	Open Water	Desktop	Keystone
Holt	653.1	17.0	PEM	Desktop	NLCD2006
Holt	656.5	13.2	Open Water	Desktop	Keystone
Holt	658.5	178.7	PSS	Desktop	NLCD2006
Holt	658.6	10.0	Open Water	Desktop	Keystone
Holt	658.6	42.1	PEM	Desktop	GAP2010
Holt	658.6	41.9	PEM	Desktop	GAP2010
Holt	659.1	2.7	PEM	Desktop	GAP2010
Holt	662.9	139.3	PSS	Desktop	NLCD2006
Holt	663.0	32.5	PEM	Desktop	GAP2010
Holt	663.0	143.3	PSS	Desktop	NLCD2006
Holt	663.0	237.0	PSS	Desktop	NLCD2006
Holt	663.0	11.0	Open Water	Desktop	Keystone
Holt	663.7	10.4	Open Water	Desktop	Keystone
Holt	663.7	37.3	Open Water	Desktop	Keystone
Holt	664.5	10.1	Open Water	Desktop	Keystone
Holt	664.5	4.1	PEM	Desktop	NLCD2006
Holt	664.6	49.4	PFO	Field Survey	Keystone
Holt	664.6	120.0	PEM	Desktop	NLCD2006
Holt	665.2	14.2	Open Water	Field Survey	Keystone
Holt	665.3	67.6	PEM	Desktop	GAP2010
Holt	666.4	12.5	PEM	Desktop	NLCD2006
Holt	666.4	18.0	PEM	Desktop	GAP2010
Holt	666.4	84.2	PEM	Desktop	GAP2010
Holt	666.5	14.1	Open Water	Field Survey	Keystone
Holt	668.0	222.7	PEM	Desktop	GAP2010
Antelope	672.5	107.5	PSS	Desktop	NLCD2006
Antelope	672.9	115.2	PEM	Desktop	NLCD2006
Antelope	675.3	24.2	Open Water	Field Survey	Keystone
Antelope	676.0	27.4	PEM	Field Survey	Keystone
Antelope	678.8	193.1	PEM	Desktop	NLCD2006
Antelope	679.2	334.0	PEM	Desktop	NLCD2006
Antelope	680.0	10.4	Open Water	Desktop	Keystone
Antelope	680.0	9.5	Open Water	Desktop	Keystone
Antelope	680.0	11.0	Open Water	Desktop	Keystone
Antelope	680.1	66.2	PSS	Desktop	NLCD2006
Antelope	680.1	10.2	Open Water	Desktop	Keystone
Antelope	680.1	86.7	PSS	Desktop	NLCD2006

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Antelope	680.1	11.2	Open Water	Field Survey	Keystone
Antelope	680.1	5.8	Open Water	Field Survey	Keystone
Antelope	680.2	70.8	Open Water	Field Survey	Keystone
Antelope	681.3	47.3	Open Water	Field Survey	Keystone
Antelope	683.0	66.3	PEM	Desktop	NWI
Antelope	683.1	357.9	Open Water	Field Survey	Keystone
Antelope	683.1	249.9	Open Water	Desktop	NWI
Antelope	683.1	119.0	PEM	Desktop	NWI
Antelope	683.2	14.6	Open Water	Desktop	Keystone
Antelope	683.5	29.8	Open Water	Desktop	Keystone
Antelope	685.1	11.6	Open Water	Desktop	Keystone
Antelope	686.9	10.2	Open Water	Desktop	Keystone
Antelope	696.9	10.0	Open Water	Desktop	Keystone
Antelope	697.0	27.7	Open Water	Field Survey	Keystone
Antelope	704.3	77.8	Open Water	Desktop	Keystone
Boone	705.2	16.0	Open Water	Field Survey	Keystone
Boone	705.4	155.4	Open Water	Desktop	NWI
Boone	705.4	84.1	Open Water	Field Survey	Keystone
Boone	709.4	45.9	Open Water	Field Survey	Keystone
Boone	713.2	20.0	Open Water	Desktop	Keystone
Boone	713.3	7.7	Open Water	Desktop	Keystone
Boone	713.3	146.4	Open Water	Desktop	Keystone
Boone	714.5	13.3	Open Water	Field Survey	Keystone
Boone	716.5	29.4	Open Water	Field Survey	Keystone
Boone	716.8	18.5	Open Water	Field Survey	Keystone
Boone	716.9	56.5	Open Water	Field Survey	Keystone
Boone	717.0	64.4	PSS	Desktop	NLCD2006
Boone	717.5	178.1	PFO	Desktop	NWI
Boone	718.5	31.4	PSS	Desktop	NLCD2006
Boone	721.7	10.0	Open Water	Field Survey	Keystone
Boone	725.2	23.1	Open Water	Field Survey	Keystone
Boone	727.8	115.6	PEM	Field Survey	Keystone
Boone	731.1	221.4	PSS	Desktop	NLCD2006
Boone	731.3	31.5	Open Water	Field Survey	Keystone
Boone	735.7	40.6	Open Water	Field Survey	Keystone
Boone	736.1	54.6	Open Water	Desktop	Keystone
Boone	737.3	61.1	Open Water	Desktop	Keystone
Boone	739.3	18.9	Open Water	Desktop	Keystone
Boone	740.2	33.5	Open Water	Desktop	Keystone
Nance	740.4	30.3	Open Water	Desktop	Keystone
Nance	743.8	111.0	PSS	Desktop	NLCD2006
Nance	743.8	15.9	Open Water	Desktop	Keystone
Nance	743.8	177.5	PSS	Desktop	NLCD2006
Nance	743.8	86.0	PSS	Desktop	NLCD2006
Nance	744.4	605.7	PFO	Desktop	NWI

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Nance	744.5	237.3	Open Water	Desktop	NWI
Nance	744.5	99.3	PFO	Desktop	NWI
Nance	744.5	77.2	PSS	Desktop	Keystone
Nance	748.6	29.0	Open Water	Desktop	NWI
Nance	748.8	37.7	Open Water	Field Survey	Keystone
Nance	749.6	180.4	Open Water	Desktop	NWI
Nance	749.7	850.0	Open Water	Desktop	Keystone
Nance	750.0	10.3	Open Water	Desktop	Keystone
Nance	750.4	10.3	Open Water	Desktop	Keystone
Nance	759.6	39.0	Open Water	Desktop	Keystone
Nance	760.1	50.8	Open Water	Desktop	Keystone
Nance	760.1	80.9	PSS	Desktop	NLCD2006
Nance	761.3	36.9	Open Water	Desktop	Keystone
Nance	761.4	16.1	Open Water	Desktop	Keystone
Nance	761.4	71.4	Open Water	Desktop	Keystone
Nance	761.5	31.1	PEM	Desktop	NLCD2006
Nance	761.5	10.2	PEM	Desktop	Keystone
Nance	761.6	19.6	Open Water	Desktop	Keystone
Nance	761.6	425.6	PEM	Desktop	Keystone
Nance	761.6	223.4	PEM	Desktop	NLCD2006
Nance	761.6	154.5	PEM	Desktop	Keystone
Nance	761.6	10.0	Open Water	Desktop	Keystone
Nance	761.8	11.7	Open Water	Desktop	Keystone
Nance	761.9	76.5	Open Water	Desktop	Keystone
Nance	762.0	232.6	PEM	Desktop	GAP2010
Nance	762.2	60.5	PEM	Desktop	GAP2010
Nance	762.5	456.8	PEM	Desktop	GAP2010
Merrick	762.8	12.1	Open Water	Desktop	Keystone
Merrick	763.5	10.1	Open Water	Desktop	Keystone
Merrick	763.7	8.8	Open Water	Desktop	Keystone
Merrick	765.3	10.0	Open Water	Desktop	Keystone
Merrick	765.3	12.5	Open Water	Desktop	Keystone
Merrick	765.3	9.8	Open Water	Desktop	Keystone
Merrick	765.3	12.9	Open Water	Desktop	Keystone
Merrick	765.4	14.3	Open Water	Desktop	Keystone
Merrick	765.5	10.4	Open Water	Desktop	Keystone
Merrick	765.7	57.6	PSS	Desktop	NLCD2006
Merrick	766.5	10.1	Open Water	Desktop	Keystone
Merrick	766.6	126.3	PSS	Desktop	NLCD2006
Merrick	766.7	161.1	PEM	Desktop	Keystone
Merrick	766.8	1639.0	PSS	Desktop	NLCD2006
Merrick	766.8	10.7	Open Water	Desktop	Keystone
Merrick	770.0	10.0	Open Water	Desktop	Keystone
Merrick	770.2	10.1	Open Water	Desktop	Keystone
Merrick	771.5	191.6	PFO	Desktop	Keystone

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Merrick	771.8	24.9	PEM	Desktop	Keystone
Merrick	772.3	31.7	Open Water	Desktop	Keystone
Merrick	772.5	79.2	PEM	Desktop	Keystone
Merrick	773.3	39.9	Open Water	Desktop	Keystone
Merrick	773.6	350.5	PFO	Desktop	Keystone
Polk	773.9	151.1	PEM	Desktop	Keystone
Polk	773.9	88.4	Open Water	Desktop	Keystone
Polk	774.6	121.9	PFO	Desktop	Keystone
Polk	774.6	59.3	Open Water	Desktop	NWI
Polk	774.6	108.2	Open Water	Desktop	Keystone
Polk	774.7	414.2	PFO	Desktop	Keystone
Polk	774.8	10.1	Open Water	Desktop	Keystone
Polk	774.8	50.3	PEM	Desktop	Keystone
Polk	774.9	359.0	Open Water	Desktop	Keystone
Polk	774.9	176.5	PFO	Desktop	Keystone
Polk	775.0	10.2	Open Water	Desktop	Keystone
Polk	775.0	928.0	PFO	Desktop	Keystone
Polk	775.0	59.2	PFO	Desktop	Keystone
Polk	775.0	15.6	Open Water	Desktop	Keystone
Polk	775.0	94.8	PSS	Desktop	NLCD2006
Polk	775.0	10.6	Open Water	Desktop	Keystone
Polk	775.0	11.1	Open Water	Desktop	Keystone
Polk	775.0	10.0	Open Water	Desktop	Keystone
Polk	775.1	10.6	Open Water	Desktop	Keystone
York	775.2	21.4	Open Water	Desktop	Keystone
York	775.2	14.8	Open Water	Desktop	Keystone
York	775.2	10.0	Open Water	Desktop	Keystone
York	775.2	15.5	Open Water	Desktop	Keystone
York	775.2	10.9	Open Water	Desktop	Keystone
York	775.3	11.1	Open Water	Desktop	Keystone
York	775.3	17.2	PEM	Desktop	NLCD2006
York	775.4	33.5	Open Water	Field Survey	Keystone
York	775.5	51.3	PEM	Desktop	NLCD2006
York	775.5	36.4	PSS	Desktop	NLCD2006
York	775.6	32.8	Open Water	Field Survey	Keystone
York	775.6	21.0	PEM	Field Survey	Keystone
York	775.6	3.3	Open Water	Field Survey	Keystone
York	776.1	4.0	Open Water	Field Survey	Keystone
York	777.3	9.0	Open Water	Field Survey	Keystone
York	784.7	37.4	Open Water	Desktop	NWI
York	785.6	11.4	Open Water	Field Survey	Keystone
York	788.9	5.0	Open Water	Field Survey	Keystone
York	790.6	18.8	Open Water	Desktop	Keystone
York	792.0	28.1	Open Water	Desktop	NWI
York	792.7	44.7	Open Water	Field Survey	Keystone

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
York	793.1	63.4	PSS	Desktop	NLCD2006
York	795.1	26.6	Open Water	Desktop	Keystone
York	796.0	17.3	Open Water	Desktop	Keystone
Fillmore	797.8	18.1	Open Water	Field Survey	Keystone
Fillmore	798.1	17.4	Open Water	Desktop	NWI
Fillmore	798.1	54.8	Open Water	Desktop	Keystone
Fillmore	799.0	20.7	Open Water	Desktop	NWI
Fillmore	801.2	27.2	Open Water	Desktop	Keystone
Fillmore	803.3	8.2	Open Water	Field Survey	Keystone
Fillmore	805.3	19.2	Open Water	Desktop	Keystone
Fillmore	805.6	15.0	Open Water	Field Survey	Keystone
Fillmore	806.2	83.6	PSS	Desktop	NLCD2006
Fillmore	809.4	53.1	Open Water	Field Survey	Keystone
Fillmore	809.4	12.7	Open Water	Desktop	Keystone
Saline	810.6	67.4	PEM	Desktop	NWI
Saline	811.4	15.4	Open Water	Field Survey	Keystone
Saline	812.8	8.2	PEM	Field Survey	Keystone
Saline	812.8	6.3	Open Water	Field Survey	Keystone
Saline	812.8	57.8	PEM	Field Survey	Keystone
Saline	813.1	336.5	PEM	Field Survey	Keystone
Saline	814.5	31.0	Open Water	Field Survey	Keystone
Saline	818.3	33.5	Open Water	Desktop	Keystone
Saline	822.7	19.6	Open Water	Field Survey	Keystone
Saline	822.7	27.9	Open Water	Desktop	Keystone
Saline	822.7	20.7	Open Water	Desktop	Keystone
Saline	824.8	166.2	PSS	Desktop	NLCD2006
Saline	825.8	11.1	Open Water	Desktop	Keystone
Saline	829.6	12.8	Open Water	Desktop	Keystone
Saline	830.8	10.1	Open Water	Desktop	Keystone
Jefferson	831.8	14.8	Open Water	Desktop	Keystone
Jefferson	831.8	10.6	Open Water	Desktop	Keystone
Jefferson	831.8	10.7	Open Water	Desktop	Keystone
Jefferson	832.2	11.7	Open Water	Desktop	Keystone
Jefferson	832.8	22.4	Open Water	Desktop	Keystone
Jefferson	833.3	10.1	Open Water	Desktop	Keystone
Jefferson	836.4	10.2	Open Water	Desktop	Keystone
Jefferson	836.4	11.5	Open Water	Desktop	Keystone
Jefferson	836.4	10.3	Open Water	Desktop	Keystone
Jefferson	836.9	10.9	Open Water	Desktop	Keystone
Jefferson	838.4	81.8	Open Water	Desktop	Keystone
Jefferson	838.6	31.2	Open Water	Desktop	Keystone
Jefferson	839.6	36.3	Open Water	Field Survey	Keystone
Jefferson	840.3	92.9	Open Water	Desktop	NWI
Jefferson	840.7	71.3	Open Water	Desktop	NWI
Jefferson	840.8	26.8	Open Water	Desktop	Keystone

Table 11 Nebraska Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Jefferson	842.6	128.5	PFO	Desktop	NWI
Jefferson	844.8	25.4	Open Water	Field Survey	Keystone
Jefferson	846.3	16.0	Open Water	Desktop	Keystone
Jefferson	847.8	23.4	Open Water	Desktop	Keystone
Jefferson	848.4	29.5	Open Water	Desktop	Keystone
Jefferson	849.0	25.8	Open Water	Desktop	Keystone
Jefferson	849.4	16.5	Open Water	Desktop	Keystone
Jefferson	849.8	23.3	Open Water	Desktop	Keystone
Jefferson	849.8	17.0	Open Water	Desktop	Keystone
Jefferson	850.5	26.5	Open Water	Desktop	Keystone
Jefferson	851.8	32.2	Open Water	Desktop	Keystone
Jefferson	853.0	18.8	Open Water	Desktop	Keystone
Jefferson	853.3	3.1	Open Water	Field Survey	Keystone
Jefferson	856.5	20.2	Open Water	Field Survey	Keystone
Jefferson	856.6	14.2	Open Water	Field Survey	Keystone
Jefferson	856.6	15.4	Open Water	Field Survey	Keystone
Jefferson	857.7	6.5	Open Water	Field Survey	Keystone
Jefferson	859.1	39.0	Open Water	Desktop	NWI

Table Notes:

[a] Beginning milepost is the approximate milepost location where the pipeline first intercepts the wetland.

[b] Distance crossed is the linear distance the wetland is intercepted by the pipeline imeasured in feet.

[c] Wetland type is based on Cowardin classification (Cowardin et al. 1979). PEM = palustrine emergent wetland, PSS = palustrine scrub shrub wetland, PFO = palustrine forested wetland.

[d] Survey type indicates whether wetland polygon was mapped during a field survey by Keystone or mapped using desktop methods (aerial photo interpretation or database GIS data).

[e] Source identifies what data source was used to generate the wetland data presented in this table.

Data Sources (see Section 4.4 references): TransCanada Keystone Pipeline, LP (Keystone) (exp Energy Services Inc. 2012a and 2012b) , NWI (USFWS 2012), NLCD 2006 (Fry 2011), GAP 2010 (USGS 2011).

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Harding	286.6	27.4	Open Water	Field Survey	Keystone
Harding	292.3	10.7	PSS	Desktop	NLCD2006
Harding	292.3	195.0	PEM	Field Survey	Keystone
Harding	292.3	1.3	PSS	Desktop	NLCD2006
Harding	292.4	40.1	PSS	Desktop	NLCD2006
Harding	292.4	35.9	PEM	Desktop	GAP2010
Harding	292.4	151.3	PEM	Desktop	NWI
Harding	292.6	19.5	PEM	Desktop	Keystone
Harding	292.6	24.0	Open Water	Field Survey	Keystone
Harding	292.6	62.4	PEM	Desktop	Keystone
Harding	293.6	40.8	Open Water	Desktop	Keystone
Harding	293.6	21.2	PEM	Desktop	Keystone
Harding	293.6	24.8	PEM	Desktop	Keystone
Harding	295.0	64.3	PEM	Desktop	Keystone
Harding	295.0	102.9	Open Water	Field Survey	Keystone
Harding	295.0	2.1	PEM	Desktop	NLCD2006
Harding	295.1	3.5	Open Water	Desktop	NWI
Harding	295.1	67.3	PEM	Desktop	Keystone
Harding	295.4	12.7	Open Water	Desktop	Keystone
Harding	296.9	17.8	Open Water	Field Survey	Keystone
Harding	297.6	45.7	Open Water	Desktop	Keystone
Harding	297.8	58.6	Open Water	Desktop	Keystone
Harding	297.9	30.0	Open Water	Desktop	Keystone
Harding	298.2	38.8	Open Water	Desktop	Keystone
Harding	298.4	226.8	PEM	Desktop	NLCD2006
Harding	298.4	14.2	Open Water	Field Survey	Keystone
Harding	298.4	37.9	Open Water	Desktop	Keystone
Harding	298.9	31.8	Open Water	Desktop	Keystone
Harding	299.2	16.5	Open Water	Field Survey	Keystone
Harding	300.0	29.8	Open Water	Desktop	Keystone
Harding	300.4	109.2	PEM	Desktop	Keystone
Harding	300.4	238.7	PEM	Desktop	NLCD2006
Harding	300.4	36.6	Open Water	Desktop	Keystone
Harding	303.2	17.6	PEM	Desktop	Keystone
Harding	303.4	37.6	Open Water	Desktop	Keystone
Harding	303.5	39.1	Open Water	Desktop	Keystone
Harding	303.5	12.4	PEM	Desktop	Keystone
Harding	304.8	65.5	Open Water	Desktop	Keystone
Harding	305.2	17.5	Open Water	Desktop	Keystone
Harding	306.3	89.7	PEM	Desktop	GAP2010
Harding	306.4	49.7	Open Water	Desktop	Keystone
Harding	307.0	173.9	Open Water	Desktop	Keystone
Harding	307.2	27.1	Open Water	Desktop	Keystone
Harding	307.8	56.5	Open Water	Desktop	Keystone

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Harding	309.1	33.9	Open Water	Desktop	Keystone
Harding	309.7	25.9	Open Water	Desktop	Keystone
Harding	311.2	19.2	Open Water	Desktop	Keystone
Harding	311.3	28.9	Open Water	Desktop	Keystone
Harding	311.7	28.9	Open Water	Field Survey	Keystone
Harding	312.7	279.2	PEM	Field Survey	Keystone
Harding	314.0	84.5	PEM	Field Survey	Keystone
Harding	316.2	16.5	Open Water	Desktop	Keystone
Harding	316.2	102.7	Open Water	Desktop	NWI
Harding	320.0	13.4	PEM	Field Survey	Keystone
Harding	320.3	131.0	Open Water	Desktop	NWI
Harding	320.5	33.2	Open Water	Desktop	Keystone
Harding	320.5	32.6	Open Water	Field Survey	Keystone
Harding	321.4	46.2	Open Water	Desktop	Keystone
Harding	321.6	10.0	Open Water	Field Survey	Keystone
Harding	321.6	205.4	PEM	Desktop	NWI
Harding	326.4	28.9	Open Water	Desktop	Keystone
Harding	329.5	5.2	PEM	Field Survey	Keystone
Harding	329.5	241.6	PSS	Desktop	NLCD2006
Harding	332.3	23.8	Open Water	Desktop	Keystone
Harding	332.4	20.9	Open Water	Field Survey	Keystone
Harding	332.4	31.0	Open Water	Field Survey	Keystone
Harding	332.7	38.3	Open Water	Field Survey	Keystone
Harding	338.8	41.7	Open Water	Desktop	NWI
Harding	339.2	217.4	PSS	Desktop	NLCD2006
Harding	340.8	74.2	Open Water	Desktop	Keystone
Harding	340.8	105.9	Open Water	Desktop	Keystone
Harding	343.0	55.3	Open Water	Desktop	Keystone
Harding	343.1	39.0	Open Water	Desktop	Keystone
Harding	344.0	24.6	Open Water	Desktop	Keystone
Harding	345.2	149.7	Open Water	Desktop	NWI
Harding	346.8	122.0	Open Water	Desktop	NWI
Harding	347.1	195.8	PEM	Field Survey	Keystone
Harding	349.8	44.4	Open Water	Field Survey	Keystone
Harding	351.7	21.7	Open Water	Desktop	Keystone
Harding	351.7	39.3	Open Water	Desktop	Keystone
Harding	351.8	133.8	Open Water	Desktop	Keystone
Harding	352.1	21.0	Open Water	Desktop	Keystone
Harding	352.4	77.2	Open Water	Desktop	Keystone
Harding	352.9	36.5	Open Water	Desktop	Keystone
Harding	353.4	81.1	Open Water	Desktop	Keystone
Harding	353.7	22.9	Open Water	Desktop	Keystone
Harding	353.7	4.6	Open Water	Field Survey	Keystone
Harding	354.9	15.6	Open Water	Desktop	Keystone

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Butte	356.2	69.5	PEM	Desktop	Keystone
Butte	356.3	156.1	Open Water	Desktop	NWI
Butte	357.1	230.5	Open Water	Desktop	NWI
Butte	358.1	297.0	Open Water	Desktop	NWI
Butte	359.1	109.1	Open Water	Field Survey	Keystone
Butte	359.8	50.1	Open Water	Desktop	NWI
Butte	360.0	37.9	Open Water	Desktop	Keystone
Butte	360.8	91.2	Open Water	Desktop	NWI
Butte	361.0	160.5	PEM	Desktop	NWI
Butte	361.0	37.3	Open Water	Desktop	Keystone
Perkins	361.6	17.7	Open Water	Field Survey	Keystone
Perkins	361.8	18.5	Open Water	Desktop	Keystone
Perkins	361.8	29.2	Open Water	Desktop	Keystone
Perkins	362.0	30.2	Open Water	Desktop	Keystone
Perkins	363.5	63.6	Open Water	Desktop	Keystone
Perkins	365.6	52.6	Open Water	Desktop	Keystone
Perkins	365.7	118.2	Open Water	Field Survey	Keystone
Perkins	366.3	261.1	PSS	Desktop	NLCD2006
Perkins	367.2	30.8	Open Water	Desktop	Keystone
Meade	368.2	13.8	PEM	Desktop	Keystone
Meade	368.9	24.0	Open Water	Desktop	Keystone
Meade	368.9	26.1	PEM	Desktop	Keystone
Meade	370.6	3.0	Open Water	Field Survey	Keystone
Meade	378.2	20.7	Open Water	Field Survey	Keystone
Meade	378.2	44.0	Open Water	Field Survey	Keystone
Meade	378.2	38.8	PEM	Desktop	Keystone
Meade	380.8	82.1	Open Water	Desktop	Keystone
Meade	383.2	10.9	PEM	Desktop	Keystone
Meade	387.8	24.3	Open Water	Desktop	Keystone
Meade	387.8	17.7	Open Water	Desktop	Keystone
Meade	388.1	26.4	Open Water	Desktop	Keystone
Meade	388.1	42.5	PEM	Desktop	Keystone
Meade	388.1	23.2	Open Water	Desktop	Keystone
Meade	388.1	6.7	Open Water	Desktop	Keystone
Meade	388.1	28.5	Open Water	Desktop	Keystone
Meade	388.5	13.8	PEM	Desktop	Keystone
Meade	389.4	20.9	Open Water	Desktop	Keystone
Meade	396.3	36.6	PEM	Desktop	Keystone
Meade	397.3	31.8	Open Water	Desktop	Keystone
Meade	398.5	7.0	Open Water	Desktop	Keystone
Meade	398.5	44.3	PEM	Desktop	Keystone
Meade	398.8	23.6	Open Water	Desktop	Keystone
Meade	399.0	57.9	PEM	Desktop	Keystone
Meade	399.1	27.1	Open Water	Desktop	Keystone

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Meade	399.7	47.2	PEM	Desktop	Keystone
Meade	399.9	20.3	Open Water	Desktop	Keystone
Meade	400.0	25.9	Open Water	Desktop	Keystone
Meade	400.0	18.3	Open Water	Desktop	Keystone
Meade	400.3	15.1	Open Water	Desktop	Keystone
Meade	400.9	62.3	Open Water	Field Survey	Keystone
Meade	400.9	68.6	Open Water	Field Survey	Keystone
Meade	400.9	140.9	PSS	Desktop	NLCD2006
Meade	401.2	56.9	PSS	Desktop	NLCD2006
Meade	402.0	594.4	PSS	Desktop	NLCD2006
Meade	402.2	1232.7	PSS	Desktop	NLCD2006
Meade	402.8	106.6	PEM	Desktop	NWI
Meade	403.3	6.4	Open Water	Field Survey	Keystone
Meade	404.1	20.9	Open Water	Desktop	Keystone
Meade	404.1	279.6	PEM	Desktop	NLCD2006
Meade	404.1	160.2	PEM	Desktop	NLCD2006
Meade	404.2	81.1	PEM	Desktop	NLCD2006
Meade	404.4	194.0	PEM	Desktop	NLCD2006
Meade	404.4	10.3	Open Water	Desktop	Keystone
Meade	408.7	32.3	Open Water	Field Survey	Keystone
Meade	410.9	278.6	PEM	Desktop	NLCD2006
Meade	411.9	40.7	Open Water	Desktop	Keystone
Meade	412.1	7.8	Open Water	Desktop	Keystone
Meade	412.1	201.4	PSS	Desktop	NLCD2006
Meade	412.3	16.5	Open Water	Field Survey	Keystone
Meade	412.4	82.1	PEM	Desktop	Keystone
Meade	412.8	22.8	Open Water	Desktop	Keystone
Meade	413.0	10.1	Open Water	Desktop	Keystone
Meade	413.4	13.1	Open Water	Desktop	Keystone
Meade	413.8	31.6	Open Water	Desktop	Keystone
Meade	423.9	23.3	Open Water	Field Survey	Keystone
Meade	423.9	10.1	Open Water	Desktop	Keystone
Meade	423.9	8.9	Open Water	Desktop	Keystone
Meade	424.0	52.4	Open Water	Desktop	Keystone
Meade	424.9	131.0	PEM	Desktop	NLCD2006
Meade	425.5	70.9	PEM	Desktop	NLCD2006
Meade	427.1	113.8	PSS	Desktop	NLCD2006
Meade	427.7	404.1	PEM	Desktop	NLCD2006
Meade	428.0	313.4	Open Water	Desktop	Keystone
Meade	428.1	421.6	PEM	Desktop	Keystone
Meade	428.2	267.8	Open Water	Desktop	Keystone
Meade	428.2	47.0	PSS	Desktop	Keystone
Meade	429.1	693.7	Open Water	Desktop	NWI
Pennington	429.6	449.7	PEM	Desktop	Keystone

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Pennington	429.7	112.7	PEM	Desktop	NLCD2006
Pennington	429.7	12.5	Open Water	Desktop	Keystone
Pennington	429.8	11.2	Open Water	Desktop	Keystone
Haakon	429.8	34.4	Open Water	Field Survey	Keystone
Haakon	429.9	302.1	PSS	Desktop	NLCD2006
Haakon	430.0	91.0	PEM	Desktop	Keystone
Haakon	430.0	32.0	PEM	Desktop	Keystone
Haakon	430.0	26.9	PEM	Desktop	Keystone
Haakon	430.2	60.3	PEM	Desktop	NWI
Haakon	430.3	13.0	Open Water	Desktop	Keystone
Haakon	430.3	135.4	PEM	Desktop	NWI
Haakon	430.8	19.8	Open Water	Desktop	Keystone
Haakon	433.6	24.2	Open Water	Desktop	Keystone
Haakon	433.6	16.5	Open Water	Desktop	Keystone
Haakon	437.9	48.2	Open Water	Field Survey	Keystone
Haakon	437.9	12.7	Open Water	Field Survey	Keystone
Haakon	437.9	24.5	Open Water	Desktop	Keystone
Haakon	439.0	24.5	PEM	Desktop	Keystone
Haakon	440.4	82.0	Open Water	Field Survey	Keystone
Haakon	441.5	108.7	PEM	Desktop	Keystone
Haakon	442.6	22.5	Open Water	Desktop	Keystone
Haakon	443.1	28.9	Open Water	Desktop	Keystone
Haakon	445.8	24.1	Open Water	Desktop	Keystone
Haakon	448.3	63.9	Open Water	Desktop	Keystone
Haakon	448.5	237.7	PEM	Desktop	NLCD2006
Haakon	449.7	102.6	PEM	Field Survey	Keystone
Haakon	452.9	189.8	PEM	Desktop	NWI
Haakon	452.9	81.9	Open Water	Field Survey	Keystone
Haakon	452.9	26.9	Open Water	Desktop	Keystone
Haakon	454.5	200.0	Open Water	Field Survey	Keystone
Haakon	459.6	32.9	Open Water	Desktop	Keystone
Haakon	459.8	86.0	Open Water	Field Survey	Keystone
Haakon	460.5	24.0	Open Water	Desktop	Keystone
Haakon	461.3	25.0	Open Water	Desktop	Keystone
Haakon	462.0	29.3	Open Water	Desktop	Keystone
Haakon	464.9	30.6	Open Water	Field Survey	Keystone
Haakon	465.3	13.8	Open Water	Desktop	Keystone
Haakon	465.3	41.1	PEM	Desktop	NWI
Haakon	466.0	84.2	PEM	Field Survey	Keystone
Haakon	469.4	379.0	PSS	Desktop	NLCD2006
Haakon	469.4	26.2	PSS	Desktop	NLCD2006
Haakon	472.8	126.6	PSS	Desktop	NLCD2006
Haakon	475.1	52.0	Open Water	Field Survey	Keystone
Haakon	477.1	35.7	Open Water	Desktop	Keystone

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Haakon	478.6	25.1	Open Water	Desktop	Keystone
Haakon	479.2	64.3	Open Water	Desktop	Keystone
Jones	483.7	32.0	Open Water	Desktop	Keystone
Jones	485.3	16.7	Open Water	Desktop	Keystone
Jones	485.3	57.3	Open Water	Desktop	Keystone
Jones	485.3	111.1	Open Water	Desktop	Keystone
Jones	485.3	58.9	Open Water	Desktop	Keystone
Jones	485.9	75.9	PEM	Desktop	NWI
Jones	485.9	19.5	Open Water	Field Survey	Keystone
Jones	486.0	49.2	Open Water	Desktop	Keystone
Jones	486.4	19.1	PEM	Field Survey	Keystone
Jones	487.3	16.1	Open Water	Field Survey	Keystone
Jones	487.4	12.4	Open Water	Field Survey	Keystone
Jones	490.1	49.1	Open Water	Desktop	Keystone
Jones	491.1	154.1	PSS	Desktop	NLCD2006
Jones	491.3	31.0	Open Water	Desktop	Keystone
Jones	492.6	66.7	Open Water	Desktop	Keystone
Jones	492.8	13.2	Open Water	Field Survey	Keystone
Jones	495.3	176.3	PSS	Desktop	NLCD2006
Jones	496.6	35.2	PEM	Field Survey	Keystone
Jones	496.9	77.3	Open Water	Desktop	Keystone
Jones	497.2	24.0	Open Water	Field Survey	Keystone
Jones	498.3	25.9	Open Water	Desktop	Keystone
Jones	499.1	29.5	Open Water	Desktop	Keystone
Jones	501.2	149.0	Open Water	Desktop	Keystone
Jones	501.8	22.6	Open Water	Desktop	Keystone
Jones	503.4	39.7	Open Water	Desktop	Keystone
Jones	505.4	33.2	Open Water	Desktop	Keystone
Jones	506.2	58.7	Open Water	Desktop	Keystone
Jones	506.2	26.6	Open Water	Desktop	Keystone
Jones	507.4	49.0	Open Water	Desktop	Keystone
Jones	508.1	55.1	Open Water	Desktop	Keystone
Jones	509.9	31.8	Open Water	Desktop	Keystone
Jones	509.9	20.7	Open Water	Desktop	Keystone
Jones	509.9	103.3	PEM	Desktop	Keystone
Jones	510.0	97.4	PEM	Desktop	Keystone
Jones	510.6	38.7	Open Water	Desktop	Keystone
Jones	511.2	52.4	Open Water	Desktop	Keystone
Jones	511.2	85.1	Open Water	Desktop	Keystone
Jones	511.3	68.0	PEM	Desktop	NWI
Jones	512.3	36.8	Open Water	Desktop	Keystone
Jones	517.5	38.9	Open Water	Desktop	Keystone
Jones	518.1	59.5	Open Water	Desktop	Keystone
Lyman	518.7	369.8	PEM	Desktop	NWI

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Lyman	518.9	15.4	Open Water	Field Survey	Keystone
Lyman	518.9	43.4	Open Water	Desktop	Keystone
Lyman	519.5	70.1	Open Water	Desktop	Keystone
Lyman	521.7	9.0	Open Water	Desktop	Keystone
Lyman	521.7	10.8	Open Water	Desktop	Keystone
Lyman	521.7	6.6	Open Water	Desktop	Keystone
Lyman	523.7	93.6	PSS	Desktop	NLCD2006
Lyman	524.9	488.0	Open Water	Field Survey	Keystone
Tripp	526.6	136.6	PSS	Desktop	Keystone
Tripp	527.0	200.6	PEM	Desktop	NLCD2006
Tripp	528.0	205.5	PSS	Desktop	NLCD2006
Tripp	528.0	1.3	Open Water	Field Survey	Keystone
Tripp	528.1	95.7	Open Water	Desktop	Keystone
Tripp	531.0	4.7	Open Water	Desktop	Keystone
Tripp	534.4	8.1	Open Water	Desktop	Keystone
Tripp	535.2	137.6	Open Water	Desktop	Keystone
Tripp	537.5	192.8	Open Water	Desktop	Keystone
Tripp	540.3	20.4	Open Water	Desktop	Keystone
Tripp	540.5	33.1	Open Water	Desktop	Keystone
Tripp	540.8	31.3	Open Water	Desktop	Keystone
Tripp	541.2	33.8	Open Water	Field Survey	Keystone
Tripp	541.2	12.9	Open Water	Desktop	Keystone
Tripp	541.3	34.5	Open Water	Desktop	Keystone
Tripp	541.4	61.6	PSS	Desktop	NLCD2006
Tripp	541.5	116.2	PSS	Desktop	NLCD2006
Tripp	541.5	99.3	PEM	Desktop	GAP2010
Tripp	543.3	57.6	Open Water	Desktop	Keystone
Tripp	543.5	63.0	Open Water	Desktop	Keystone
Tripp	543.5	99.4	PEM	Desktop	Keystone
Tripp	543.7	29.2	Open Water	Desktop	Keystone
Tripp	544.6	85.2	PEM	Desktop	Keystone
Tripp	545.7	440.2	PEM	Desktop	NLCD2006
Tripp	546.1	37.2	PEM	Desktop	GAP2010
Tripp	546.5	244.9	PSS	Desktop	NLCD2006
Tripp	546.8	76.2	PEM	Desktop	GAP2010
Tripp	547.3	52.1	Open Water	Desktop	Keystone
Tripp	549.0	34.7	Open Water	Desktop	Keystone
Tripp	550.2	338.8	PEM	Desktop	Keystone
Tripp	550.8	34.2	Open Water	Desktop	Keystone
Tripp	550.8	26.5	PSS	Desktop	NLCD2006
Tripp	550.9	29.4	PEM	Desktop	NLCD2006
Tripp	552.3	67.4	PEM	Desktop	GAP2010
Tripp	552.5	14.2	PSS	Desktop	NLCD2006
Tripp	553.9	21.1	Open Water	Desktop	Keystone

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Tripp	553.9	278.9	PEM	Desktop	NLCD2006
Tripp	553.9	299.4	PEM	Desktop	NWI
Tripp	554.6	108.4	PEM	Desktop	NWI
Tripp	554.7	19.5	Open Water	Desktop	Keystone
Tripp	555.4	11.7	PEM	Desktop	NLCD2006
Tripp	555.4	138.5	PEM	Desktop	NWI
Tripp	555.7	163.3	PEM	Desktop	NWI
Tripp	555.9	40.6	Open Water	Desktop	Keystone
Tripp	557.5	109.2	PSS	Desktop	NLCD2006
Tripp	557.6	553.9	PSS	Desktop	NLCD2006
Tripp	558.3	14.7	Open Water	Field Survey	Keystone
Tripp	558.4	62.1	PSS	Desktop	NLCD2006
Tripp	558.5	15.2	Open Water	Field Survey	Keystone
Tripp	561.4	139.5	PEM	Desktop	NWI
Tripp	561.7	214.8	PEM	Desktop	NWI
Tripp	562.1	75.3	PEM	Desktop	Keystone
Tripp	563.0	26.4	Open Water	Desktop	Keystone
Tripp	563.4	39.4	PEM	Desktop	Keystone
Tripp	564.6	157.2	PEM	Desktop	GAP2010
Tripp	564.6	204.3	PEM	Desktop	NWI
Tripp	564.7	122.9	PEM	Desktop	NWI
Tripp	564.9	58.5	PEM	Desktop	GAP2010
Tripp	565.0	34.1	PEM	Desktop	NLCD2006
Tripp	567.3	133.2	PEM	Desktop	NWI
Tripp	570.1	112.4	PEM	Desktop	GAP2010
Tripp	570.2	34.2	PEM	Desktop	NLCD2006
Tripp	570.2	1726.8	PEM	Desktop	GAP2010
Tripp	570.3	136.2	PEM	Desktop	NWI
Tripp	570.6	77.5	PEM	Desktop	NWI
Tripp	575.6	49.5	PEM	Desktop	NWI
Tripp	576.5	73.0	PEM	Desktop	NWI
Tripp	576.9	807.6	PEM	Desktop	GAP2010
Tripp	577.0	72.9	PEM	Desktop	NLCD2006
Tripp	577.0	44.6	PEM	Desktop	GAP2010
Tripp	577.7	1677.9	PEM	Desktop	GAP2010
Tripp	577.7	0.9	PEM	Desktop	GAP2010
Tripp	577.7	18.6	PEM	Desktop	NLCD2006
Tripp	577.8	72.6	PEM	Desktop	NLCD2006
Tripp	577.8	68.4	PEM	Desktop	GAP2010
Tripp	577.8	339.4	PEM	Desktop	NLCD2006
Tripp	577.8	16.8	PEM	Desktop	GAP2010
Tripp	577.8	50.6	PEM	Desktop	GAP2010
Tripp	577.8	101.5	PEM	Desktop	GAP2010
Tripp	577.8	259.5	PEM	Desktop	GAP2010

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Tripp	577.9	33.0	PEM	Desktop	NWI
Tripp	577.9	72.0	PEM	Desktop	NWI
Tripp	577.9	232.6	PEM	Field Survey	Keystone
Tripp	577.9	320.4	PEM	Desktop	NLCD2006
Tripp	577.9	25.1	PEM	Desktop	NWI
Tripp	578.0	3.2	PEM	Desktop	NLCD2006
Tripp	578.0	354.3	PEM	Desktop	GAP2010
Tripp	578.1	198.3	PEM	Desktop	GAP2010
Tripp	578.1	206.3	PEM	Desktop	GAP2010
Tripp	578.3	65.1	PEM	Desktop	NWI
Tripp	578.4	394.2	PEM	Desktop	NLCD2006
Tripp	578.4	11.3	Open Water	Field Survey	Keystone
Tripp	578.4	106.6	PEM	Desktop	NWI
Tripp	578.6	1599.3	PEM	Desktop	GAP2010
Tripp	578.7	6.0	PEM	Desktop	NWI
Tripp	578.7	63.6	PEM	Desktop	NWI
Tripp	578.7	285.0	PEM	Desktop	GAP2010
Tripp	578.7	43.6	PEM	Desktop	GAP2010
Tripp	578.9	458.8	PSS	Desktop	NLCD2006
Tripp	578.9	83.0	PEM	Desktop	GAP2010
Tripp	578.9	101.9	PEM	Desktop	NLCD2006
Tripp	579.0	66.2	PEM	Desktop	NWI
Tripp	579.0	10.6	PEM	Desktop	GAP2010
Tripp	579.0	21.5	PSS	Desktop	NLCD2006
Tripp	579.0	192.6	PFO	Desktop	NWI
Tripp	579.1	26.4	Open Water	Desktop	Keystone
Tripp	579.1	9.7	PEM	Desktop	NLCD2006
Tripp	579.1	203.2	PEM	Desktop	GAP2010
Tripp	579.2	101.0	PEM	Desktop	GAP2010
Tripp	579.2	219.5	PEM	Desktop	NLCD2006
Tripp	580.6	17.8	Open Water	Desktop	Keystone
Tripp	580.6	28.2	PEM	Desktop	GAP2010
Tripp	580.6	39.9	PEM	Desktop	NLCD2006
Tripp	580.6	235.8	PEM	Desktop	GAP2010
Tripp	580.7	262.9	PEM	Desktop	NWI
Tripp	580.8	909.2	PEM	Desktop	GAP2010
Tripp	581.0	408.7	PEM	Desktop	GAP2010
Tripp	581.0	219.7	PEM	Desktop	NLCD2006
Tripp	581.0	320.8	PEM	Desktop	GAP2010
Tripp	581.1	1254.4	PEM	Desktop	GAP2010
Tripp	581.1	10.4	PEM	Desktop	GAP2010
Tripp	581.1	212.0	PEM	Desktop	GAP2010
Tripp	581.4	1983.8	PEM	Desktop	GAP2010
Tripp	581.4	276.5	PEM	Desktop	NLCD2006

Table 12 South Dakota Wetlands Along Project Route by Milepost

County	Beginning Milepost[a]	Distance Crossed (ft)[b]	Wetland Type[c]	Survey Type[d]	Source[e]
Tripp	581.4	156.6	PEM	Desktop	GAP2010
Tripp	581.4	6.1	PEM	Desktop	GAP2010
Tripp	581.8	100.6	PEM	Desktop	NLCD2006
Tripp	583.1	76.9	PEM	Desktop	GAP2010
Tripp	583.1	128.9	PEM	Desktop	GAP2010
Tripp	583.2	164.1	PSS	Desktop	NLCD2006
Tripp	583.4	72.7	PSS	Desktop	NLCD2006
Tripp	583.8	302.2	PEM	Desktop	NLCD2006
Tripp	584.0	24.5	PEM	Desktop	GAP2010
Tripp	584.5	424.8	PEM	Desktop	GAP2010
Tripp	584.5	73.7	PEM	Desktop	NLCD2006
Tripp	584.5	77.4	PEM	Desktop	GAP2010
Tripp	584.5	68.1	PEM	Desktop	NLCD2006
Tripp	584.5	91.0	PEM	Desktop	NLCD2006
Tripp	584.6	81.7	PSS	Desktop	NLCD2006
Tripp	584.9	50.6	Open Water	Desktop	Keystone
Tripp	585.2	28.7	Open Water	Desktop	Keystone
Tripp	585.3	160.7	PSS	Desktop	NLCD2006
Tripp	585.5	5.8	Open Water	Field Survey	Keystone
Tripp	586.8	11.5	Open Water	Desktop	Keystone
Tripp	586.8	21.2	Open Water	Desktop	Keystone
Tripp	586.9	16.8	Open Water	Desktop	Keystone
Tripp	586.9	24.3	Open Water	Desktop	Keystone
Tripp	587.1	38.8	Open Water	Desktop	Keystone
Tripp	587.2	35.3	Open Water	Desktop	Keystone
Tripp	587.2	297.7	PSS	Desktop	NLCD2006
Tripp	587.3	60.1	Open Water	Field Survey	Keystone
Tripp	587.6	65.4	PEM	Desktop	GAP2010
Tripp	587.6	22.3	PSS	Desktop	NLCD2006
Tripp	587.7	12.8	Open Water	Desktop	Keystone

Table Notes:

[a] Beginning milepost is the approximate milepost location where the pipeline first intercepts the wetland.

[b] Distance crossed is the linear distance the wetland is intercepted by the pipeline measured in feet.

[c] Wetland type is based on Cowardin classification (Cowardin et al. 1979). PEM = palustrine emergent wetland, PSS = palustrine scrub shrub wetland, PFO = palustrine forested wetland.

[d] Survey type indicates whether wetland polygon was mapped during a field survey by Keystone or mapped using desktop methods (aerial photo interpretation or database GIS data).

[e] Source identifies what data source was used to generate the wetland data presented in this table.

Data Sources (see Section 4.4 references): TransCanada Keystone Pipeline, LP (Keystone) (exp Energy Services Inc. 2012a and 2012b), NWI (USFWS 2012), NLCD2006 (Fry 2011), GAP (2010) (USGS 2011).

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Required Crossing Criteria for Reclamation Facilities

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TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
GP-4200
ENV-6.00

APR 2 2 2013

Ms. Genevieve Walker
U.S. Department of State
Bureau of Oceans and International
Environmental and Scientific Affairs
2201 C Street, NW OES/ENV Room 2657
Washington, D.C. 20520

Dear Ms. Walker:

The Bureau of Reclamation (Reclamation) is providing final crossing criteria (enclosed) for guiding construction of the proposed TransCanada Keystone XL pipeline across Reclamation facilities. We are requesting the Department of State to include the enclosed document in whole as an appendix to the Supplemental Environmental Impact Statement. Concurrently, we are submitting the criteria to the Bureau of Land Management National Project Manager and requesting inclusion of the final crossing criteria in the Final Plan of Development. Reclamation is providing copies of the criteria to TransCanada, the Oglala Sioux Tribe, and irrigation district managers of Reclamation project facilities crossed by the oil pipeline.

The final crossing criteria represent reasonable and necessary measures for the oil pipeline crossings of Reclamation water project infrastructure. The proposed pipeline would cross Reclamation facilities in seven places, all on private lands in Montana and South Dakota. Reclamation provided draft criteria to the Oglala Sioux Tribe, affected irrigation districts, TransCanada, and a professional consulting firm for comment. The final criteria incorporated comment suggestions where appropriate, and allow for site-specific adjustments that may be necessary during construction. Each party may have representative field personnel responsible for coordinating construction at the crossings.

Under 43 CFR 429, Reclamation would issue TransCanada a letter of Acknowledgement of Easement Crossing including the crossing criteria as terms and conditions. This consent document addresses Reclamation's easement rights to use and enjoy the private lands for the purpose of operating and maintaining water pipelines and related facilities. We request the Department of State include language in the Record of Decision, should the project be approved, to make Reclamation's crossing criteria a requirement for the construction phases and the operational life of the pipeline.

Thank you for the opportunity to provide our requirements. If you have any questions on the information provided or need additional information, please call me at 406-247-7600 or Vernon LaFontaine at 406-247-7720. We would like to remain on your mailing list for the project.

Sincerely,

For

Michael J. Ryan
Regional Director

Enclosure -2 copies

cc: Mr. Jim Stobaugh
National Project Coordinator
Bureau of Land Management
BLM Nevada State Office
P.O. Box 12000
1340 Financial Blvd.
Reno, NV 89520-0006

Honorable Bryan Brewer
President, Oglala Sioux Tribe
P.O. Box 2070
Pine Ridge, SD 57770

Mr. Jim White
TransCanada
450 - 1st Street S.W.
Calgary, Alberta
Canada T2P 5H1

Mr. Steven Marr, P.E.
Manager, U.S. Pipeline
Keystone Pipeline Project
TransCanada Pipelines Limited
2700 Post Oak Blvd., Suite 400
Houston, TX 77056

Jon A. Schmidt, Ph.D.
Vice President
Environmental and Regulatory Services
Exp Energy Services, Inc.
1300 Metropolitan Blvd.
Tallahassee, FL 32308

Mr. Dave Sire
Office of Environmental Policy and Compliance
1849 C Street, NW – MS2462-MIB
Washington D.C. 20240
(w/ encl to all)

United States Department of the Interior
BUREAU OF RECLAMATION
Great Plains Region
P.O. Box 36900
Billings, Montana 59107-6900

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National Project Coordinator
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The final crossing criteria present reasonable and necessary measures for the proposed pipeline crossings of Reclamation water project infrastructure. The proposed pipeline crosses Reclamation facilities at seven places, all on private lands in Montana and South Dakota. Reclamation provided draft criteria to the Oglala Sioux Tribe, affected irrigation districts, TransCanada, and a professional consulting firm for comment. The final criteria allow for site-specific adjustments that may be necessary during construction. Each party may have representative field personnel responsible for coordinating construction at the crossings.

Under 43 CFR 429, Reclamation would issue TransCanada a letter of Acknowledgement of Easement Crossing including the criteria as terms and conditions. This consent document addresses Reclamation's easement rights to use and enjoy the private lands for the purpose of operating and maintaining water pipelines and related facilities. We are also requesting the Department of State to include language in the Record of Decision, should the project be approved, to make Reclamation's crossing criteria a requirement for the construction phases and for the operational life of the pipeline.

Thank you for considering Reclamation's request. If you have any questions on the information provided or need additional information, please call me at 406-247-7600 or Vernon LaFontaine at 406-247-7720.

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For

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Regional Director

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Mr. Dave Sire
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1849 C Street, NW – MS2462-MIB
Washington D.C. 20240
(w/ encl to all)

RECLAMATION

Managing Water in the West

TransCanada Keystone XL Pipeline

Required Crossing Criteria for Reclamation Facilities

August 2010

Revised: April 2013

U.S. Department of the Interior
Bureau of Reclamation
Great Plains Region

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OGLALA SIOUX RURAL WATER

March 26, 2013

Mni Wiconi Project, OSRWSS Core System Crossing Criteria for the TransCanada Keystone XL Project

Background Information: The Mni Wiconi Project in South Dakota includes the Oglala Sioux Rural water Supply System (OSRWSS Core System) which delivers potable water from the vicinity of Fort Pierre, South Dakota, south to three Indian reservations and a non-Indian rural water system. The OSRWSS Core System has two major conveyance pipelines, the South Core line and North Coreline. The South Core line runs directly south of Fort Pierre while the North Core line runs west of Fort Pierre about 40 miles and then south. At the proposed Keystone XL Pipeline crossings the South Core pipeline is constructed of 24 inch diameter steel while the North Core pipeline is constructed of 14 inch PVC.

Interruption of Service during Keystone XL Construction: TransCanada shall make provisions acceptable to Reclamation and OSRWSS for any activity conducted by TransCanada that causes water service in the OSRWSS Core System pipeline to be interrupted during Keystone XL construction. Under no circumstances shall the South Core and North Core pipelines have interruptions in water service at the same time. Such provisions shall include advance notification of the service interruption and temporary facilities to continue water service for interruptions lasting longer than 12 hours.

General Crossing Criteria:

- Not later than 10 days before start of construction, TransCanada shall provide OSRWSS and Reclamation with notice of the start of construction in the vicinity of the crossing to facilitate monitoring and observation.

- TransCanada shall be responsible for addressing landowner concerns, issues and interests within the OSRWSS right-of-way or easement.

- A minimum clearance of 6 feet between the TransCanada Keystone XL pipeline and the OSRWSS Core System potable water pipelines at both crossing shall be maintained.

- TransCanada must design its crossings such that the OSRWSS Core pipeline suffers no reduction in working pressure rating or pipeline integrity due to the operations of TransCanada. TransCanada will design the Keystone XL pipeline at both crossings with a 50 percent working pressure factor (as referenced in Appendix M of the Plan of Development). The higher pressure rated pipe should extend through the existing OSRWSS Core rights-of-way at both crossing locations.

- TransCanada shall install above ground signage (noting Keystone Pipeline location), and provide copies of as-built drawings of the Keystone XL Pipeline crossings to OSRWSS and Reclamation within 90 days of substantial completion of the crossing. The as-built drawings will show the location of the Keystone XL pipeline, the OSRWSS Core System pipelines and the fiber optic cables. The drawings will denote the latitude and longitude coordinates at each crossing location.

South Core Pipeline Crossing Criteria:
NW ¼, Section 36, T1S, R29E, Jones County

- The following drawings depict details of the OSRWSS pipeline in the vicinity of the crossings.
    1. Drawing G-3 showing the general location of the OSRWSS steel pipeline crossing
    2. Drawing C-40 showing the plan and profile of the OSRWSS steel pipeline crossing.
    3. Drawing CP-1 showing the Corrosion Protection (CP) Details

- TransCanada shall provide OSRWSS and Reclamation with drawings and specifications for review and comment of all features of construction at the crossing, including cathodic protection. The cathodic protection design is of particular concern to assure it does not impact the South Core pipeline or its cathodic protection system. Comments will be provided to TransCanada which shall be incorporated into the final project Plan of Development.

- TransCanada shall bore under the OSRWSS South Core pipeline right-of-way, which is 75 feet wide.

- The OSRWSS South Core line (24 inch diameter steel) is protected by an induced current ground bed. TransCanada must coordinate and correspond with OSRWSS's and Reclamation's corrosion experts prior to developing crossing plans to assess the potential impacts of interference of its pipeline.

- TransCanada shall install test stations as shown on Drawing CP-1. An alternate design / location of the corrosion protection test station may be used if mutually acceptable.

- TransCanada shall not case the Keystone XL pipeline crossing under the OSRWSS South Core line due to potential cathodic protection interference problems. If this is not possible, then TransCanada must provide a cathodic protection plan for review, comment, and approval from OSRWSS and Reclamation which accounts for the casing pipe.

- OSRWSS has a buried fiber optic cable installed above the South Core pipeline that was placed by plow; its precise location is unknown. The burial depth information provided on the drawings is for information purposes only. TransCanada shall take whatever precautions necessary to avoid damaging the buried fiber optic cable.

North Core Pipeline Crossing Criteria:
NE ¼, Section 8, T2N, R23E, Haakon County

- TransCanada shall provide OSRWSS and Reclamation with drawings and specifications for review and comment of all features of construction at the crossing. Comments will be

provided to TransCanada which shall be incorporate into the final project Plan of Development.

- The North Core pipeline (14 inch PVC) will be relocated a minimum of 6 feet below the planned bottom of the Keystone XL pipeline at the crossing location.

- The North Core pipeline (14 inch PVC) pipeline will include a casing pipe using fused joint PVC pipe designed with sufficient diameter and wall strength for the burial conditions. Ends of casing pipe will be sealed.

- The casing pipe will have a minimum total length of 300 feet (150 feet each side of crossing) or longer depending on allowable deflection of the North Core pipeline (14 inch PVC) and fused joint PVC pipe.

- The North Core pipeline relocation shall be designed and constructed in accordance with industry acceptance standards including applicable American Water Works Association manuals and 10 States Standards - Recommended Standards for Water Works.

- The North Core pipeline relocation site will be reclaimed as near as possible to its condition prior to the disturbance. The North Core pipeline will be relocated in a manner that causes the least interference to the landowner and their use of the land and if any injury is necessarily done to appurtenances such as roads, ditches, drainage, fences, vegetation, etc., it will repair or replace the same or will pay the landowner for such injury.

R:\2245\Trans Canada Keystone XL Pipeline\MMI OSRWSS Recommendations\Phase VI sitebase.dwg Apr/12/2010

RECORD DRAWING 11/24/03 GVE

VERIFY SCALE!
THESE PRINTS MAY BE REDUCED OR ENLARGED. MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY

PROFESSIONAL ENGINEER
REG. NO. 5038
TIMOTHY ROBERT BERRY
SOUTH DAKOTA

REVISIONS			
NO.	DESCRIPTION	DATE	BY

MORRISON MAIERLE, INC.
An Employee-Owned Company
ENGINEERS SCIENTISTS SURVEYORS PLANNERS SINCE 1945
510 Helena Avenue Helena MT 59604
Phone: (406) 442-3080 Fax: (406) 442-7852
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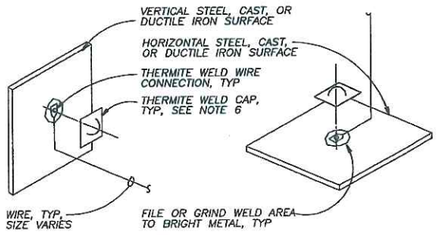
DRAWN BY: CJB
CHK'D. BY: TRB
APPR. BY: TRB
DATE: 2/2001
Q.A. REVIEW
BY:
DATE:

MNI WICONI CORE PIPELINE – PHASE VI
OGLALA SIOUX RURAL WATER SUPPLY SYSTEM

KEY MAP

PROJECT NO.
2245.012.02
SHEET NUMBER
3
DRAWING NUMBER
G-3



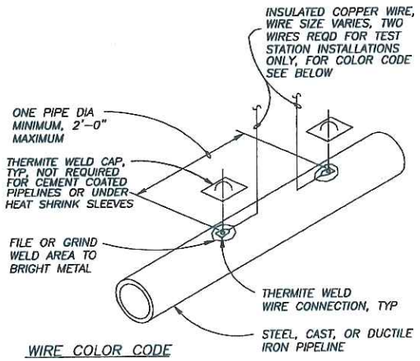
NOTES:

1. COPPER SLEEVE REQUIRED FOR THERMITE WELDING OF #10 AWG AND SMALLER WIRE.
2. USE COPPER SLEEVE FOR THERMITE WELDING OF #4 AND #2 AWG JOINT BONDING WIRES.
3. WELDER AND CARTRIDGE SIZE VARIES ACCORDING TO SURFACE SHAPE, MATERIAL, AND HORIZONTAL OR VERTICAL SURFACE. CONSULT WELDER MANUFACTURER FOR RECOMMENDED WELDER AND CARTRIDGE.
4. FOR MULTIPLE WIRE CONNECTIONS TO PIPE SEPARATE THERMITE WELD WIRE CONNECTIONS BY ONE PIPE DIAMETER MINIMUM, 2'-0" MAXIMUM.
5. USE 15 GRAM MAXIMUM SIZE WELD CARTRIDGES FOR CONNECTIONS TO PETROLEUM AND NATURAL GAS PIPELINES OR STRUCTURES. WIRE CONNECTIONS SHALL BE AS SPECIFIED AND APPROVED BY THE OWNER.
6. COMPLETE THERMITE WELD CONNECTIONS IN ACCORDANCE WITH (13903)
7. COAT COMPLETED THERMITE WELD CONNECTIONS WITH ROYSTON HANDYCAP II AND 747 PRIMER OR HEAT SHRINK SLEEVE AS SPECIFIED.
8. COLOR CODE WIRES ACCORDING TO WIRE COLOR CODE (13902)
9. ATTACH THERMITE WELD TO STUD OR WELD BASE PLATE IF PROVIDED.

WIRE CONNECTION FOR VERTICAL AND HORIZONTAL SURFACES (13901)

NTS

STD DET 13901



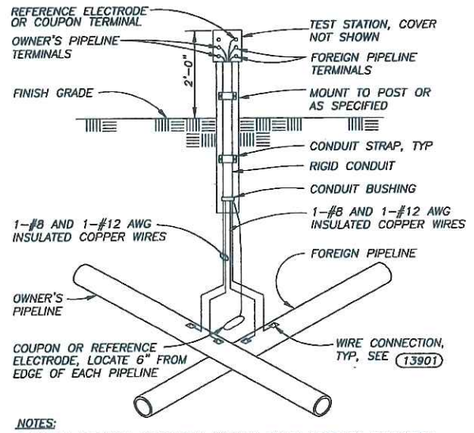
WIRE COLOR CODE

1. PIPELINE TEST WIRES:
   WATER – BLUE
   FOREIGN PIPELINES – WHITE OR AS REQUESTED BY FOREIGN PIPELINE COMPANY
2. UNPROTECTED PIPELINE – BLACK
3. CASINGS – ORANGE
4. ANODE LEADS – BLACK
5. REFERENCE ELECTRODE WIRES – YELLOW

PIPELINE WIRE CONNECTION (13902)

NTS

STD DET 13902



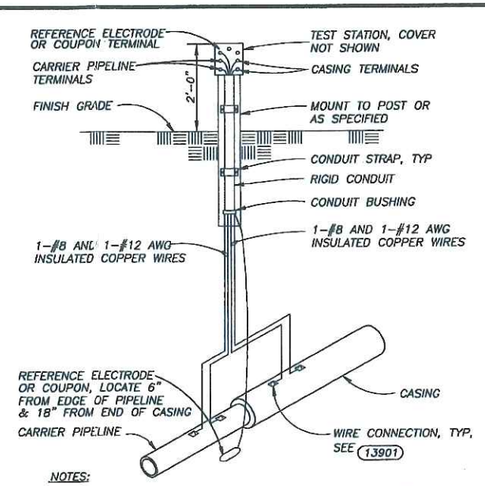
NOTES:

1. OBTAIN APPROVAL OF FOREIGN PIPELINE OWNER PRIOR TO EXCAVATION.
2. WIRE CONNECTIONS TO FOREIGN PIPELINE SHALL BE MADE BY FOREIGN PIPELINE REPRESENTATIVE.
3. INSTALL REFERENCE ELECTRODES OR COUPONS ONLY AT TEST STATIONS INDICATED ON TEST STATION LOCATION SCHEDULE.
4. COLOR CODE WIRES ACCORDING TO WIRE COLOR CODE (13902)

TYPE P–F POST MOUNTED TEST STATION (13923)

NTS

STD DET 13923



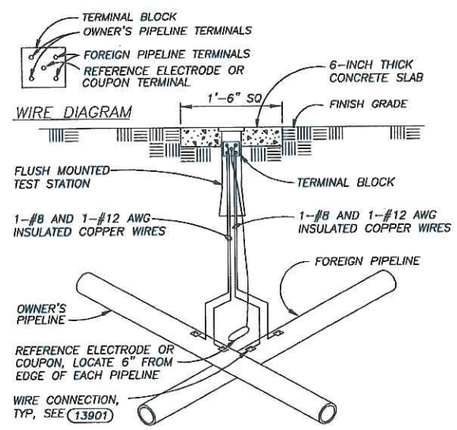
NOTES:

1. INSTALL REFERENCE ELECTRODES OR COUPONS ONLY AT TEST STATIONS INDICATED ON TEST STATION LOCATION SCHEDULE.
2. COLOR CODE WIRES ACCORDING TO WIRE COLOR CODE (13902)

TYPE P–C POST MOUNTED TEST STATION (13924)

NTS

STD DET 13924

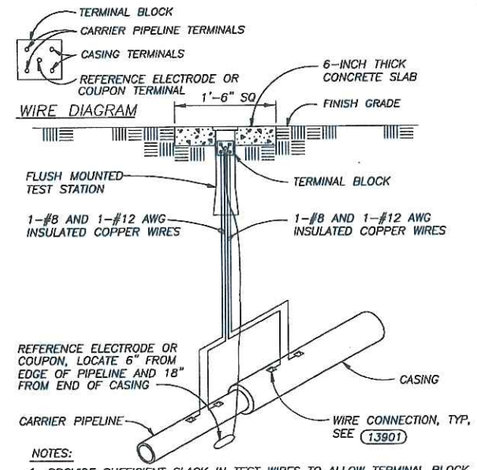


NOTES:

1. OBTAIN APPROVAL OF FOREIGN PIPELINE OWNER PRIOR TO EXCAVATION.
2. WIRE CONNECTIONS TO FOREIGN PIPELINE SHALL BE MADE BY FOREIGN PIPELINE REPRESENTATIVE.
3. PROVIDE SUFFICIENT SLACK IN TEST WIRES TO ALLOW TERMINAL BLOCK TO EXTEND 18" OUT OF TEST STATION. COIL WIRES IN TEST STATION.
4. INSTALL REFERENCE ELECTRODES OR COUPON ONLY AT TEST STATIONS INDICATED ON TEST STATION LOCATION SCHEDULE.
5. COLOR CODE WIRES ACCORDING TO WIRE COLOR CODE (13902)

TYPE F–F FLUSH MOUNTED TEST STATION (13933)

STD DET 13933



NOTES:

1. PROVIDE SUFFICIENT SLACK IN TEST WIRES TO ALLOW TERMINAL BLOCK TO EXTEND 18" OUT OF TEST STATION. COIL WIRES IN TEST STATION.
2. INSTALL REFERENCE ELECTRODES OR COUPON ONLY AT TEST STATIONS INDICATED ON TEST STATION LOCATION SCHEDULE.
3. COLOR CODE WIRES ACCORDING TO WIRE COLOR CODE (13902)

TYPE F–C FLUSH MOUNTED TEST STATION (13934)

NTS

STD DET 13934

VERIFY SCALE!
THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING.
MODIFY SCALE ACCORDINGLY!

REVISIONS			
NO.	DESCRIPTION	DATE	BY

R:\2246\Trans Canada Keystone XL Pipeline\MMI OSRWSS Recommendations\CP Recommendations.dwg Plotted by tim berry on Apr/12/2010

MORRISON MAIERLE, INC.
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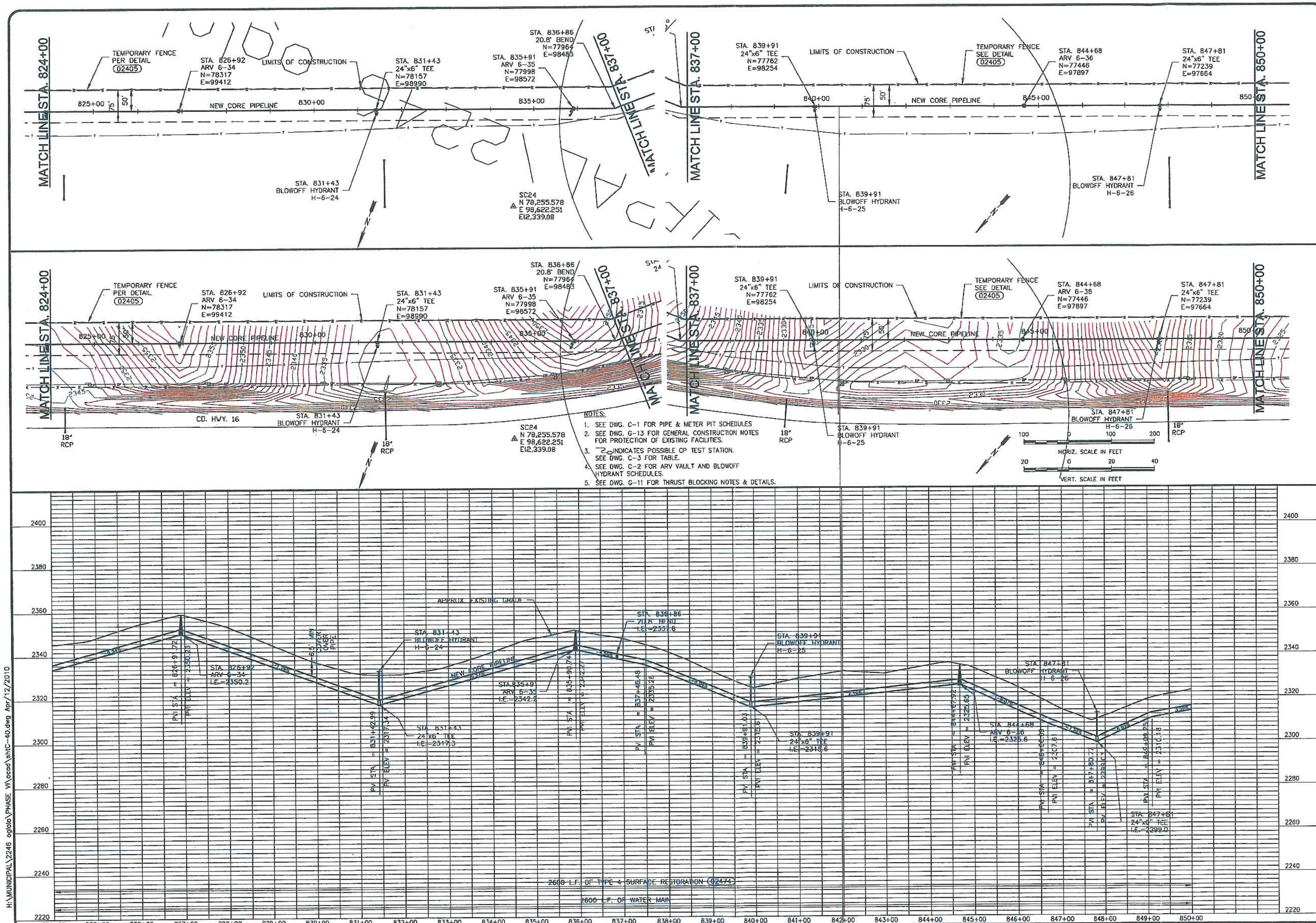
REGISTERED PROFESSIONAL ENGINEER
REG. NO. 5036
TIMOTHY ROBERT BERRY
SOUTH DAKOTA

DRAWN BY: JMH
CHK'D. BY: JMH
APPR. BY: TRB
DATE: 4/2010
Q.A. REVIEW
BY:
DATE:

OGLALA SIOUX RURUAL WATER SUPPLY SYSTEM
TransCanada Keystone Pipeline Crossing of Sourh Core Pipeline
Near Draper SOUTH DAKOTA

CORROSION PROTECTION DETAILS

PROJECT NUMBER 2245.022.08
SHEET NUMBER 73
DRAWING NUMBER CP-1


MATCH LINE STA. 824+00
MATCH LINE STA. 837+00
MATCH LINE STA. 850+00
TEMPORARY FENCE PER DETAIL (02405)
LIMITS OF CONSTRUCTION
NEW CORE PIPELINE
STA. 826+92 ARV 6-34 N=78317 E=99412
STA. 831+43 24"x6" TEE N=78157 E=98990
STA. 831+43 BLOWOFF HYDRANT H-6-24
STA. 835+91 ARV 6-35 N=77998 E=98572
STA. 836+86 20.8° BEND
SC24 N 78,255.578 E 98,622.251 El2,339.08
STA. 839+91 24"x6" TEE N=77762 E=98254
STA. 839+91 BLOWOFF HYDRANT H-6-25
TEMPORARY FENCE SEE DETAIL (02405)
STA. 844+68 ARV 6-36 N=77446 E=97897
STA. 847+81 24"x6" TEE N=77239 E=97664
STA. 847+81 BLOWOFF HYDRANT H-6-26
CO. HWY. 16
18" RCP
NOTES:
1. SEE DWG. C-1 FOR PIPE & METER PIT SCHEDULES
2. SEE DWG. G-13 FOR GENERAL CONSTRUCTION NOTES FOR PROTECTION OF EXISTING FACILITIES.
3. INDICATES POSSIBLE CP TEST STATION. SEE DWG. C-3 FOR TABLE.
4. SEE DWG. C-2 FOR ARV VAULT AND BLOWOFF HYDRANT SCHEDULES.
5. SEE DWG. G-11 FOR THRUST BLOCKING NOTES & DETAILS.
HORIZ. SCALE IN FEET
VERT. SCALE IN FEET
APPROX. EXISTING GRADE
STA. 826+92 ARV 6-34 I.E.=2350.2
STA. 831+43 24"x6" TEE I.E.=2317.3
STA. 835+91 ARV 6-35 I.E.=2342.2
STA. 839+91 24"x6" TEE I.E.=2315.6
STA. 844+68 ARV 6-36 I.E.=2325.6
STA. 847+81 24"x6" TEE I.E.=2299.0
2600 L.F. OF TYPE 4 SURFACE RESTORATION (02474)
2600 L.F. OF WATER MAIN
H:\MUNICIPAL\2246 oglala\PHASE VI\acad\sht\C-40.dwg Apr/12/2010

VERIFY SCALE! THESE PRINTS MAY BE REDUCED. LINE BELOW MEASURES ONE INCH ON ORIGINAL DRAWING. MODIFY SCALE ACCORDINGLY!

REGISTERED PROFESSIONAL ENGINEER REG. NO. 5036 TIMOTHY ROBERT BERRY SOUTH DAKOTA

REVISIONS

NO.	DESCRIPTION	DATE	BY

MORRISON MAIERLE, INC.
An Employee-Owned Company
ENGINEERS SURVEYORS PLANNERS SCIENTISTS SINCE 1945

DRAWN BY: CJB
CHK'D. BY: JMH
APPR. BY: TRB
DATE: 02/2001
Q.A. REVIEW BY: DATE:

MINI WICONI CORE PIPELINE – PHASE VI
OGLALA SIOUX RURAL WATER SUPPLY SYSTEM

FINISHED WATER – PLAN & PROFILE
STA. 824+00 TO STA. 850+00

PROJECT NO. 2246.012.02
SHEET NUMBER 47
DRAWING NUMBER C-40

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GENERAL REQUIREMENTS
FOR CANAL CROSSINGS

Utility Crossing Reclamation's Canals
General Requirements

General Requirements:

1. Utility crossings shall be in compliance with the Engineering and O&M Guidelines for Crossings - Bureau of Reclamation Water Conveyance Facilities (April 2008) located in the Appendix.
2. Utility crossings include open ditch laterals, subsurface and surface drains, levees, and similar facilities.
3. Utilities crossing Reclamation canals should be designed to cross perpendicular (between 70 and 90 degrees).
4. Pier construction in the canal for new utility crossings will not be allowed. New utility crossings will be free span design.
5. Open cut crossings of Reclamation canals and ditches, when allowed, require replacing linings to re-establish the original construction style and materials (i.e., disturbed concrete lining panels will be removed in their entirety and replaced, membrane lining and earth or concrete protective cover will be re-constructed, gravel and canal under-drainage systems will be re-established to full working order, etc.) Proposed methods of construction will be prepared and provided for approval.
6. For backfill/compaction requirements, refer to Section 02302 – Compacting Earth Materials.
7. Boring and jacking of a utility will constructed through the embankment foundation materials. Boring and jacking of a utility through canal embankments or protective levees will not be permitted. Applicants will make special design and construction considerations with bored crossings under canals containing water during construction. Among these will be using proper bentonite slurry to seal the annulus space between the utility conduit and the boring cavity from canal seepage.

   The applicant's drilling plan will cover:
   a. Drilling methods and equipment.
   b. Methods for preserving existing foundation material.
   c. Methods and equipment to determine the presence of quick soil conditions or scouring and caving.
   d. Proposed method for installation and removal if casings are used.
   e. Methods and equipment for accurately determining the depth of concrete and actual or theoretical volume placed.

   The applicant's contingency plan will cover:
   a. Means to repair facilities.
   b. Minimum flows after an event.

b. Maximum utility operating pressure, type of pipe, joints, wall thickness, maximum test pressure, and description of test procedures.
c. Type of sleeve/casing (when allowed) including diameter, joints, and wall thickness.
d. For utilities attached to a bridge or an overchute, details showing the structure name, superstructure, abutments, spacing or utility supports on the structure, location of other attached utilities, and structural calculations.
e. Protective coatings and corrosion control measures.
f. Method of handling pipeline expansion and contraction.
g. Location of the nearest shutoff valve on each side of the crossing.
h. Location and details of thrust restraints.
i. Design code(s) used for the utility crossing.
j. Location, including depth, of the buried pipeline communication and control cables.
k. Other existing utility easements in the immediate vicinity.

14. If the Developer does not follow the requirements outlined herein, Reclamation reserves the right to correct discrepancies and charge the Developer for corrections.
15. If the TransCanada Keystone XL Pipeline causes injury to Reclamation structures or facilities, Reclamation will seek full and just compensation.

Hazardous Material Carrier Requirements:

1. Pipelines carrying hazardous material or pollutants (e.g., oils, gasoline, sewage, contaminated waters, and non-potable waters) will be designed for a reduced risk of failure in the portion within Reclamation's ROW. The design will require either:
    a. Designing the crossing pipeline with an additional 50 percent working pressure factor or
    b. Using secondary containment (casing pipe) for all hazardous material pipelines.
2. To minimize the amount of any hazardous material entering the canal, Reclamation may require the installation of a block (gate) valve and or a check valve on each side of the canal between the ROW boundary and the canal prism. When selecting the types of valves, take into account the flow direction and terrain.
3. A final hazardous material spill contingency plan and an emergency response plan shall be approved by Reclamation prior to the start of construction.
4. A monitoring program and/or Supervisory control and Data Acquisition system alarm may be required depending on the hazardous material be transported. This applies to all "overcrossings" and "undercrossings" when the hydraulic grade line is with 60 inches of the canal liner or when geology would promote this requirement.

Utility Crossing Reclamation's Underground Pipelines

c. Review of geotechnical conditions.
d. Assessment of how the proposed mitigations will address geotechnical conditions.
e. Methods of restoring foundation materials.
f. List of material, equipment, and personnel with qualifications to be used during mitigation work.
g. A seal from a Professional Engineer on all relevant plans and drawings.

8. When horizontal directional drilling (HDD) or other trenchless methods are used, canal seepage conditions may be aggravated by the collapse of the canal foundation material into the annular void between the bore and pipe. Penetration through the top stratum of fine-grained materials may concentrate seepage at those locations. Pipe installed with trenchless methods shall proceed only after completion of a comprehensive evaluation of the following:
    a. Comprehensive understanding of the subsurface soil and groundwater conditions to a minimum depth of 20 feet below the lowest pipe elevation.
    b. Locations of the HDD pipe penetration entry and exit.
    c. Construction procedures.
    d. Allowable uplift pressures.
    e. Onsite quality control and quality assurance monitoring during construction operations.
    f. Grouting of the pipe annulus.
    g. Backfilling of any excavated areas.
    h. Repair and reinstatement of the construction staging areas.

    A geotechnical report will be submitted with the application for review prior of the proposed utility crossing.

9. Cut and cover constructed utilities under Reclamation canals shall be in accordance with drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.
10. Reclamation's ongoing Operation and Maintenance (O&M) activities will not be disturbed during crossing construction. The primary or secondary operating roads shall be kept available for Reclamation use at all times.
11. Canal embankments will be re-built or repaired with materials and standards equal to or better than the existing embankments.
12. Disturbed areas shall be reseeded in accordance with Section 02924 – Seeding and Soil Supplements.
13. Drawings will be stamped and signed by a Professional Engineer and contain the following information:
    a. Canal milepost or station at each proposed crossing, utility size and location, and type of utility or material transported.

1. The applicant will submit the procedures, excavation plans, schedules, as well as type and weight of the construction equipment to be used for crossing the Reclamation pipeline.
2. For utilities crossing above or under the Reclamation pipeline, the vertical clearance between the utility and the Reclamation pipeline shall be as shown on drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.
3. The location of the Reclamation pipeline through the proposed construction area shall be shown on the plans. Prior to Reclamation approval of the crossing, the pipeline shall be located and exposed by "potholing." The "pothole" locations shall be shown on the drawings. Elevations of the existing Reclamation pipeline shall also be shown on the drawings.
4. Drawings shall contain the following:
    a. Reclamation milepost or stationing at each proposed crossing, pipeline size and location, and type of utility or material transported.
    b. Maximum utility operating pressure, type of pipe and joints, maximum test pressure and description of test procedures, wall thickness, and utility pipe classification.
    c. Type of sleeve/casing pipe (when allowed) including diameter, joints, and wall thickness.
    d. Protective coatings and corrosion control measures.
    e. Location of nearest shutoff valve on each side of the crossing.
    f. Location and details of thrust restraint.
    g. Design code(s) used for utility crossing.
    h. Location, including depth, of the Reclamation pipeline.
    i. Other existing utility easements in the immediate vicinity.
    j. Detectable warning tape will be required over trenched utilities.
    k. For trench backfill/compaction requirements, see Section 02302 – Compacting Earth Materials.
    l. Embankments will not be allowed within Reclamation's ROW where underground pipeline exists.
5. Disturbed areas shall be reseeded in accordance with Section 02924 – Seeding and Soil Supplements.

SECTION 02302 - COMPACTING EARTH MATERIALS

PART 1 GENERAL

1.01 REFERENCES

A. ASTM International (ASTM)

1.	ASTM D 422-63(2002)	Particle-Size Analysis of Soils
2.	ASTM D 653-07d	Terminology Relating to Soil, Rock, and Contained Fluids
3.	ASTM D 698-07	Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
4.	ASTM D 1140-00(2006)	Amount of Material in Soils Finer than the No. 200 (75-μm) Sieve
5.	ASTM D 1556-07	Density and Unit Weight of Soil in Place by the Sand-Cone Method
6.	ASTM D 2216-05	Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
7.	ASTM D 2487-06	Classification of Soils for Engineering Purposes (Unified Soil Classification System)
8.	ASTM D 2488-06	Description and Identification of Soils (Visual-Manual Procedure)
9.	ASTM D 4253-00(2006)	Maximum Index Density and Unit Weight of Soils Using a Vibratory Table
10.	ASTM D 4254-00(2006)	Minimum Index Density and Unit Weight of Soils and Calculation of Relative Density
11.	ASTM D 4318-05	Liquid Limit, Plastic Limit, and Plasticity Index of Soils
12.	ASTM D 4564-02a	Density of Soil in Place by the Sleeve Method
13.	ASTM D 4643-00	Determination of Water (Moisture) Content of Soil by the Microwave Oven Heating
14.	ASTM D 4718-87(2001)	Correction of Unit Weight and Water Content for Soils Containing Oversize Particles
15.	ASTM D 4914-99	Density of Soil and Rock in Place by the Sand Replacement Method in a Test Pit
16.	ASTM D 4959-07	Determination of Water (Moisture) Content of Soil by Direct Heating

17.	ASTM D 5030-04	Density of Soil and Rock in Place by the Water Replacement Method in a Test Pit
18.	ASTM D 5080-00	Rapid Determination of Percent Compaction
19.	ASTM D 6938-07	In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depths)

B. Bureau of Reclamation (USBR)

1. USBR EM - Earth Manual, Part 2, Third Edition (1990)

2. Procedure No. and Title:

a.	USBR 3900-89	Standard Definitions of Terms and Symbols
	1) Relating to Soil Mechanics	
b.	USBR 5000-86	Determining Unified Soil Classification (Laboratory Method)
c.	USBR 5005-86	Determining Unified Soil Classification (Visual Method)
d.	USBR 5300-89	Determining Moisture Content of Soil and Rock by the Oven Method
e.	USBR 5315-89	Determining Moisture Content by the Microwave Method
f.	USBR 5325-89	Performing Gradation Analysis of Gravel Size Fraction of Soils
g.	USBR 5330-89	Performing Gradation Analysis of Fines and Sand Size Fraction of Soils, Including Hydrometer Analysis
h.	USBR 5335-89	Performing Gradation Analysis of Soils Without Hydrometer
i.	USBR 5350-89	Determining the Liquid Limit of Soils by the One-Point Method
j.	USBR 5355-89	Determining the Liquid Limit of Soils by the Three-Point Method
k.	USBR 5360-89	Determining the Plastic Limit and Plasticity Index of Soils
l.	USBR 5500-89	Performing Laboratory Compaction of Soils--5.5-lbm Rammer and 18-in Drop
m.	USBR 5525-89	Determining the Minimum Index Unit Weight of Cohesionless Soils

n.	USBR 5530-89	Determining the Maximum Index Unit Weight of Cohesionless Soils
o.	USBR 5605-89	Determining Permeability and Settlement of Soils Containing Gravel
p.	USBR 7205-89	Determining Unit Weight of Soils In-Place by the Sand-Cone Method
q.	USBR 7215-89	Determining the Unit Weight of Soils In-Place by the Sleeve Method
r.	USBR 7220-89	Determining Unit Weight of Soils In-Place by the Sand Replacement Method in a Test Pit
s.	USBR 7221-89	Determining Unit Weight of Soils In-Place by the Water Replacement Method in a Test Pit
t.	USBR 7230-89	Determining Unit Weight and Moisture Content of Soil In-Place - Nuclear Moisture-Density Gauge
u.	USBR 7240-89	Performing Rapid Method of Construction Control
v.	USBR 7250-89	Determination of Percent Relative Density
w.	USBR 7255-89	Determining the Percent Compaction of Earthwork for Construction Control

1.02 DEFINITIONS

A. Use definitions from USBR 3900 or ASTM D 653.

B. Control Fraction: The portion of a soil sample consisting of particles smaller than a designated sieve size. The fraction is used to compare in-place unit weight with standard laboratory unit weight. The control sieve size depends on the laboratory test used (USBR 7230).

C. C-Value: The ratio expressed as a percentage of (1) in-place unit weight at fill moisture content to (2) the wet unit weight of a laboratory-compacted specimen prepared at fill moisture content as determined by the rapid method of construction control (USBR 7240, ASTM D 5080). The C-Value is a comparison of compactive effort of field compaction equipment to standard laboratory compactive effort.

D. D-value: The ratio expressed as a percentage of (1) in-place wet unit weight at fill moisture content to (2) laboratory maximum wet unit weight as determined from a compaction curve constructed at fill moisture content as determined by the rapid method of construction control. The D-value is the equivalent of percent compaction (USBR 7240, ASTM D 5080).

E. Percent Relative Compaction: The percent compaction of a cohesionless soil where the laboratory maximum density is determined by Maximum Index Unit Weight test (USBR 5530, ASTM D 4253).

F. Percent Relative Density - (D_d percent) : The ratio of, (1) the difference between void ratio of a cohesionless soil in the loosest state and any given void ratio, to (2) the difference between its void ratios in the loosest state and densest state (USBR 7250)

G. Special compaction: Compaction close to structures or in spaces not accessible by rollers.

1.03 PROJECT ENVIRONMENTAL REQUIREMENTS

A. Do not place and compact soil under following conditions:

1. Ambient air temperature below freezing.
2. Rain that creates puddles in clayey or silty materials.
3. Heat or wind or both that dries material below special moisture conditions.
4. Ice or snow pockets are visible in soil being placed.

PART 2 PRODUCTS

2.01 CLASSIFICATION

A. When required, classify earth materials using the Unified Soil Classification System (USCS) according to ASTM D 2487 (or USBR 5000) or ASTM D 2488 (or USBR 5005).

1. Gradation tests for classification: ASTM D 422 or D 1140 (USBR 5325, 5330, or 5335).
2. Atterberg limits testing for classification: ASTM D 4318 (USBR 5350, 5355, or 5360).

2.02 SOIL TYPES

A. Clean Fill:

1. Any soil classification except for Peat (PT), Organic Silts and Organic Clays (OL and OH), and Elastic Silt (MH).
2. Free of roots, stumps, limbs, vegetation, organic matter, and ice.
3. Does not contain construction debris, scrap materials, refuse, man-made wastes, or chemical or hydro-carbon contamination.

B. Do not use frozen soils.

C. Special Gradations/Plasticity

1. In some cases, such as embedment for buried pipe, special gradations and/or plasticity characteristics may be required. These requirements are given for each special material required in the appropriate section.

2.03 DESIGNATION OF SOILS FOR COMPACTION

A. Requirements for lift thickness, method of compaction, and method of determining degree of compaction depends on whether soil is considered to be silty or clayey, cohesionless, or cohesionless containing some silt and clay.

B. Silty or Clayey Soils:

1. Contain appreciable amounts of fines (generally more than 15 percent fines).
2. Classified as GM, GC, SM, SC, CL, ML, CH, or any dual symbol or borderline soil beginning with one of these symbols.

C. Cohesionless Soils:

1. Contain few fines (generally less than 5 percent fines).
2. Classified as GW, SW, GP, SP, or any borderline soil beginning with any of these symbols.

D. Cohesionless Soils Containing Some Clay and Silt:

1. Contain some clay and silt contain between 5 and 15 percent fines.
2. Classified with dual symbol soils such as GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, SP-SC.

2.04 MAXIMUM PARTICLE SIZE

A. Backfill against specific structures:

1. Maximum particle size limitations described in appropriate sections.
2. Otherwise, no cobbles or boulders.

B. Compacted soil for embankment: No cobbles larger than 5 inches or boulders.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

A. Clear, grub, and strip.

B. Prepare surface so that first compacted lift will be placed on firm, stable base. Compact surface to specified compaction, if necessary.

C. For water-retaining compacted fill, scarify and moisten surface to provide satisfactory bonding surface before placing layer of material to be compacted.

D. Do not place soil on frozen surface.

3.02 SOIL MOISTURE CONTENT

A. Moisten or aerate material, as necessary, to provide moisture content that will readily facilitate obtaining specified compaction. Add water to soil only in increments that will permit moisture content to be uniform and homogenous throughout each layer after mixing.

B. Silty and Clayey Soils:

1. Moisture content during compaction: Not greater than 2 percentage points wet or not less than 2 percentage points dry of optimum moisture content.
2. Add no more than 2 percent water to fill by sprinkling just prior to compaction when fill is clayey and contains dry clods of clay.
    a. If clayey borrow soil is more than 2 percent below optimum moisture, pre-conditioning and curing may be required to obtain uniform and homogenous distribution of moisture in the clods.
    b. Use of disks, harrows, or rakes may be required to blend moisture in the borrow area.
3. Moisture content will be determined as follows:
    a. Moisture content is determined on the minus no. 4 sieve size control fraction material.
    b. Variation from Optimum Moisture Content:
        1) Difference between optimum moisture and compaction moisture can be measured in accordance with ASTM D 5080 (or USBR 7240).
    c. Moisture Content Comparison:
        1) Optimum moisture content determined by ASTM D 698 (or USBR 5500).
        2) Compared to field compaction moisture content with moisture contents determined in accordance with:
            a) ASTM D 2216 (or USBR 5300), or
            b) ASTM D 6938 (USBR 7230). The moisture from the nuclear gage will require corrections for gage error for the specific soils tested and the moisture content of the total material may require adjustment for the control fraction (see USBR 7230, Method C; ASTM D 4718), or

c) ASTM D 4959, or ASTM D 4643 (USBR 5315), provided the results have been correlated to ASTM D 2216 (USBR 5300) for specific soil tested.

C. Cohesionless Soils:

1. Add water during compaction, as necessary, since these soils are free-draining.

3.03 PLACEMENT

A. Place soils to be compacted in horizontal layers.

B. If necessary, blend materials so that compacted fill is homogenous and free from lenses, pockets, streaks, voids, laminations, or other imperfections.

3.04 COMPACTION

A. Compact material with following methods and techniques appropriate to type of soil.

B. Silty or clayey material in water retaining embankment:

1. Compact with tamping rollers specified above.
2. Uniformly distribute roller passes.
3. Compact in horizontal layers to compacted thickness of 6 inches or less.
4. Scarify lifts as required for lift bonding.
5. Density:
   a. Percent Compaction, minimum: 95 percent, or
   b. C-Value and D-value, minimum: 95 percent
   c. As determined on portion of soil passing the No. 4 sieve.

C. Silty or clayey material:

1. Compact with mechanical impact tampers, tamping rollers, vibrating pad foot rollers, rubber tire rollers, other suitable compaction equipment, or equipment travel.
   a. Uniformly distribute equipment passes.
   b. Compact in horizontal layers to compacted thickness of 6 inches or less.
2. Special compaction: Compact with hand held impact tampers, or small tamping equipment.
   a. Uniformly distribute effort.
   b. Compact in horizontal layers to compacted thickness of 4 inches.
3. Density:

a. Percent Compaction, minimum: 95 percent, or

b. D-value, minimum: 95 percent

c. As determined on portion of soil passing the No. 4 sieve.

D. Cohesionless Soils Containing Some Silt and Clay:

1. Compact in accordance with the procedure above.

2. Density:

a. Percent Compaction, minimum: 95 percent, or

b. Relative Compaction, minimum: 95 percent.

c. Using whichever testing procedure result requires higher in-place dry density.

E. Adjustment:

1. Silty and clayey soils containing more than 50 percent gravel: Required D ratio or Percent Compaction may be adjusted in accordance with appropriate curve on Figure 4 in USBR 5605.

F. Demonstration:

1. Lift thicknesses may vary depending on equipment and methods. Before changing requirements in this section, demonstrate that required density will be obtained.

3.05 MEASURE OF COMPACTION

A. Degree of soil compaction will be determined by one of the following.

B. Silty or clayey soils:

1. Unit weight of soils in-place:

a. ASTM D 1556 (or USBR 7205), or

b. ASTM D 4914 (or USBR 7220), or

c. ASTM D 5030 (or USBR 7221), or

d. ASTM D 6938 (or USBR 7230).

2. Percent Compaction will be determined by one of the following:

a. Rapid Method: ASTM D 5080 (or USBR 7240).

b. Laboratory Compaction Test: Comparison of in-place density of minus no. 4 sieve size control fraction to laboratory maximum dry density as determined by ASTM D 698, Procedure A (or USBR 5500).

c. Silty and clayey soils containing more than 5 percent gravel:

1) In-place unit weight of minus no. 4 size control fraction determined by screening gravel, washing, and determining mass and volume by assuming surface saturated dried moisture as outlined in ASTM D 4718 (USBR 7205).

3.06 FIELD QUALITY ASSURANCE

A. Testing

1. The Government or its representative will perform tests as required to verify that type of soil used, placement of soil, and compaction of soil conform to contract requirements.
2. Notify the Government 24 hours before compaction work begins and 24 hours before significant change in compaction operations (major change in equipment or procedure used).
3. Notify the Government immediately of equipment change due to breakdown, or re-deployment.

B. Testing Frequency

1. Frequency of testing is at discretion of the Government.
2. Greater frequency of testing is normally performed at beginning of new work, new work crew, or new equipment.

C. Tests:

1. Standards listed in Table 02302A - Standard Used for Testing, will be used by the Government or its representative for testing compacted soil for conformance with specification requirements. Substitution or modification of standards shall be done only with concurrence of all parties.

Table 02302A - Standard Used For Testing

PROCEDURE	STANDARD NO.
Soil Classification	ASTM D 2487 (or USBR 5000) ASTM D 2488 (or USBR 5005)
Gradation Analysis	ASTM D 422 (or USBR 5325, 5330, 5335)
Atterberg Limits	ASTM D 4318 (or USBR 5350, 5355, 5360)
Moisture Content	ASTM D 2216 (or USBR 5300) ASTM D 6938 (or USBR 7230) ASTM D 4643 (or USBR 5315)
Relative Density of Cohesionless Soils	ASTM D 4253 and ASTM D 4254 (or USBR 5525 and 5530 and 7250)

Table 02302A - Standard Used For Testing

PROCEDURE	STANDARD NO.
In-Place Density: Sand Cone Test Pits Sleeve Nuclear	 ASTM D 1556 (or USBR 7205) ASTM D 4914 (or USBR 7220) ASTM D 5030 (or USBR 7221) ASTM D 4564 (or USBR 7215) ASTM D 6938
Rapid Construction Control	ASTM D 5080 (or USBR 7240)
Laboratory Maximum Density	ASTM D 698, Procedure A (USBR 5500)

D. Contractor Support

1. Provide timely access to areas for density testing and excavate and level an area in compacted material to provide a surface for testing.
   a. Fills compacted by sheepsfoot rollers are normally tested one or two lifts below surface.
2. When density is being measured by a sand-cone device (ASTM D 1556, USBR 7205), cease construction activity in immediate vicinity of testing.
3. Dig test pits as requested to examine compacted soil against structures or pipe.
4. Backfill test pits to original requirements.
5. Provide warning lights, flags, or other safety devices as needed by testing personnel.
6. Provide adequate lighting for performing test if required because of darkness.

END OF SECTION

SECTION 02924 - SEEDING AND SOIL SUPPLEMENTS

PART 1 GENERAL

1.01 DEFINITIONS

A. Pure live seed content: Weight of seed times percent purity times percent germination.

1.02 DELIVERY STORAGE AND HANDLING

A. Seed containers:

1. Sealed.
2. Labeled:
   a. Identify seed origin on label.
      1) Intrastate shipping: In accordance with State Seed Laws and Regulations.
      2) Interstate shipping: In accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed Act.

PART 2 PRODUCTS

2.01 SEED

A. Weed seeds classified by State Seed Department:

1. Prohibited noxious weeds: None
2. Restricted noxious weeds: 0.5 percent maximum, by weight.

B. Seed mixture:

1. Purity, minimum: 85 percent.
2. Germination, minimum: 85 percent.
   a. Germination test: Less than 1 year old at time of seeding.
3. Uniform mixture shown in Table 02924A - Seed Mixture.

Table 02924A - Seed Mixture

Common Name	Scientific Name	Seeding Rate (Pounds pure live seed per acre)
Pubescent wheatgrass	*Agropyron trichophorum*	3
Western wheatgrass	*Pascopyrum smithii*	3

Table 02924A - Seed Mixture

Common Name	Scientific Name	Seeding Rate (Pounds pure live seed per acre)
Sid oats grama	*Bouteloua curtipendula*	2

2.02 FERTILIZER

A. Agricultural grade nitrogen fertilizer and phosphate fertilizer.

1. Nitrogen fertilizer: Urea (46-0-0).

2.03 STRAW MULCH

A. Wheat or barley straw.

B. Free of mold or other evidence of decomposition.

C. Free from weed seed.

2.04 HYDROMULCH

A. Silva-Fiber, manufactured by Weyerhauser, Tacoma WA, 98477; Spray Mulch X-80 manufactured by Pacific Wood Fibers, PO Box 2109, Redmond WA 98052; or equal, having the following essential characteristics:

1. Wood cellulose fiber.
2. No germination or growth inhibiting factors.
3. Dyed appropriate color to allow visual metering of application.
4. Evenly dispersed and suspended when agitated in water.
5. Forms blotter like ground cover that readily absorbs water and allows infiltration to underlying soil.

2.05 TACKIFIER

A. Mixture of at least three specially blended compatible hydrocolloids.

1. One hydrocolloid will act as a slippery agent during suspension.
2. Will form loose, long-chain-like film on drying.
3. No growth or germination inhibiting factors.
4. Hydrates and disperses in circulating water to form homogeneous slurry.
5. Equilibrium air dry moisture content at time of manufacture of 8 percent, plus or minus 2 percent.
6. Minimum water holding capacity: 6-1/2 times weight of dry material.

PART 3 EXECUTION

3.01 SEEDBED PREPARATION

A. Complete prior to seeding, and mulching or hydromulching.

B. Scarify or harrow and rake topsoil to minimum depth of three inches.

C. Remove stiff clods, lumps, roots, litter, stones, and other foreign material greater than 6 inches in size from the surface. Dispose of removed materials by removal from the site.

D. Fill or smooth topsoil surface to remove rills, gullies and depressions.

E. Protect prepared topsoil surfaces from erosion and washouts. Repair damaged surfaces as required.

3.02 SEEDING

A. Seed applied by: (1) broadcast seeding followed by mulching or hydromulching, (2) drilling seed followed by mulching, (3) hydroseeding followed by hydromulching, or (4) hydroseeding and hydromulching.

B. Apply seed mixture at rate specified in Table 02924A - Seed Mixture.

C. Seed only between September 1 and November 1 of each year.

D. Do not seed or fertilize when ambient temperature is below 38 degrees F without approval of the COR.

E. Do not seed or fertilize when ground is snow covered.

F. Do not seed, fertilize, or mulch, or hydroseed when wind velocities prevent uniform application of materials or would drift materials.

G. Apply nitrogen fertilizer uniformly at a rate of 30 pounds of nitrogen content per acre (65 pounds per acre of Urea).

3.03 BROADCAST SEEDING

A. Broadcast seed only in areas not accessible for drilling or hydroseeding.

B. Apply seed and fertilizer separately.

C. Mechanical broadcasting:

1. Equipment:
    a. Centrifugal type.
    b. Pull type similar to fertilizer spreader.

2. Designed and regulated to apply seed uniformly at proper rate per acre.

D. Hand Broadcasting:

1. By hand broadcaster.
2. By hand.
3. Uniformly applied.

E. Cover seed with soil to depth of 1/4-inch to 1/2-inch immediately after broadcasting.

1. Use hand rake or float.
2. Do not use log chain or similar device.

3.04 DRILLING SEED

A. Regulate drill to uniformly distribute seed at rate specified and cover with soil depth of 1/4-inch to 1/2-inch.

B. Apply seed and fertilizer separately.

C. Drill crosswise to general slope where possible to safely operate equipment.

3.05 MULCHING

A. Spread within 2 days of spreading seed.

B. Rate: 2 tons per acre uniformly spread

C. Anchor with threader.

1. Operate crosswise to slope.
2. Depth: 3 to 4 inches.
3. Interval: 6 to 12 inches across slope.

3.06 HYDROSEEDING

A. Seed slurry:

1. Mix to keep homogeneous.
2. Ingredients:
   a. Water
   b. Seed
   c. Wood cellulose fiber mulch:
      1) Rate: 1,000 pounds per acre at 10 percent moisture content.
      2) Add to water slurry after seed.

d. Fertilizer may be applied with hydroseeding.

3. Maximum time between batching slurry and application: 1 hour.

B. Spray apply seed slurry mix uniformly.

C. Use mulch coloring as metering agent.

D. Apply seed slurry before mulch slurry.

3.07 HYDROMULCHING

A. Mulch slurry:

1. Mix to keep homogeneous.

2. Ingredients:

a. Water.

b. Tackifier.

c. Wood cellulose fiber mulch: 3,000 pounds per acre at 10 percent moisture content.

d. Nitrogen fertilizer may be applied with hydromulching.

3. Maximum time between batching slurry and application: 1 hour.

B. Spray apply mulch slurry mix uniformly.

C. Use mulch coloring as metering agent.

D. Apply mulch slurry within 24 hours after applying seed.

3.08 HYDROSEEDING AND HYDROMULCHING

A. Slurry:

1. Mix to keep homogeneous.

2. Ingredients:

a. Water

b. Tackifier

c. Seed

d. Wood cellulose fiber mulch:

1) Rate: 4,000 pounds per acre at 10 percent moisture content.

2) Add to water slurry after seed.

e. Fertilizer may be applied with hydroseeding.

3. Maximum time between batching slurry and application: 1 hour.

B. Spray apply slurry mix uniformly.

C. Use mulch coloring as metering agent.

END OF SECTION

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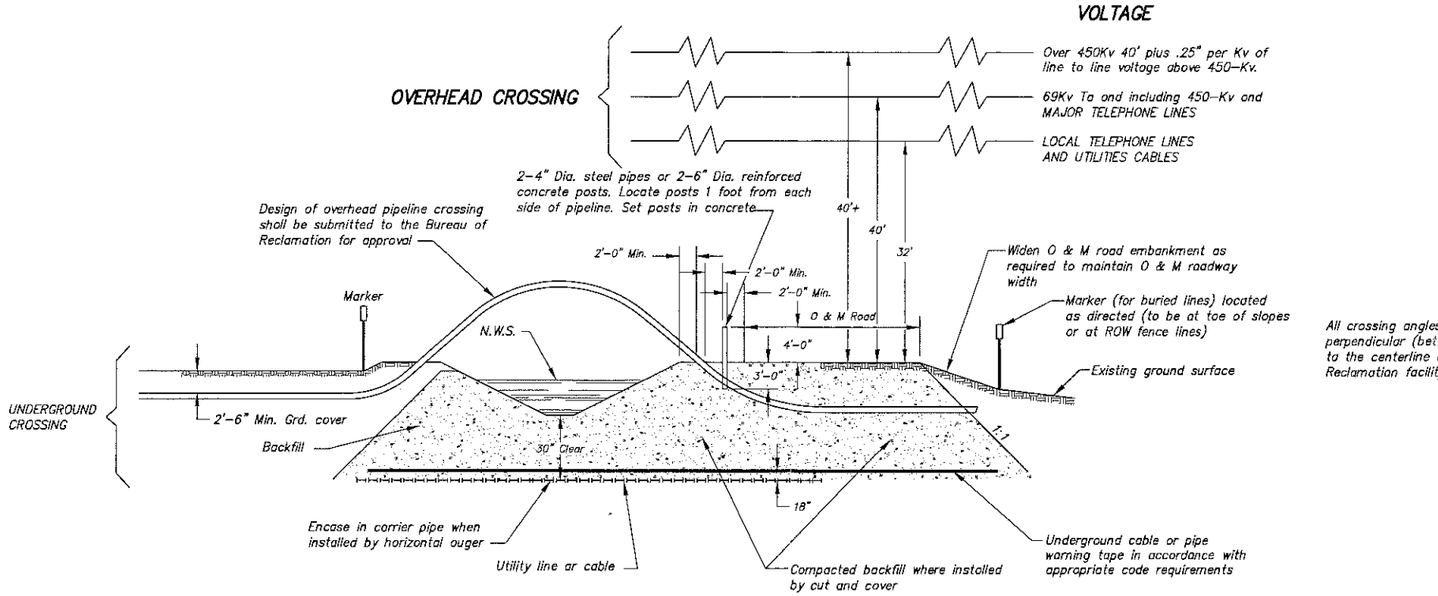

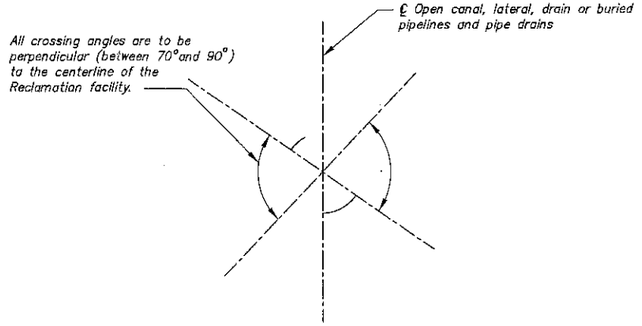

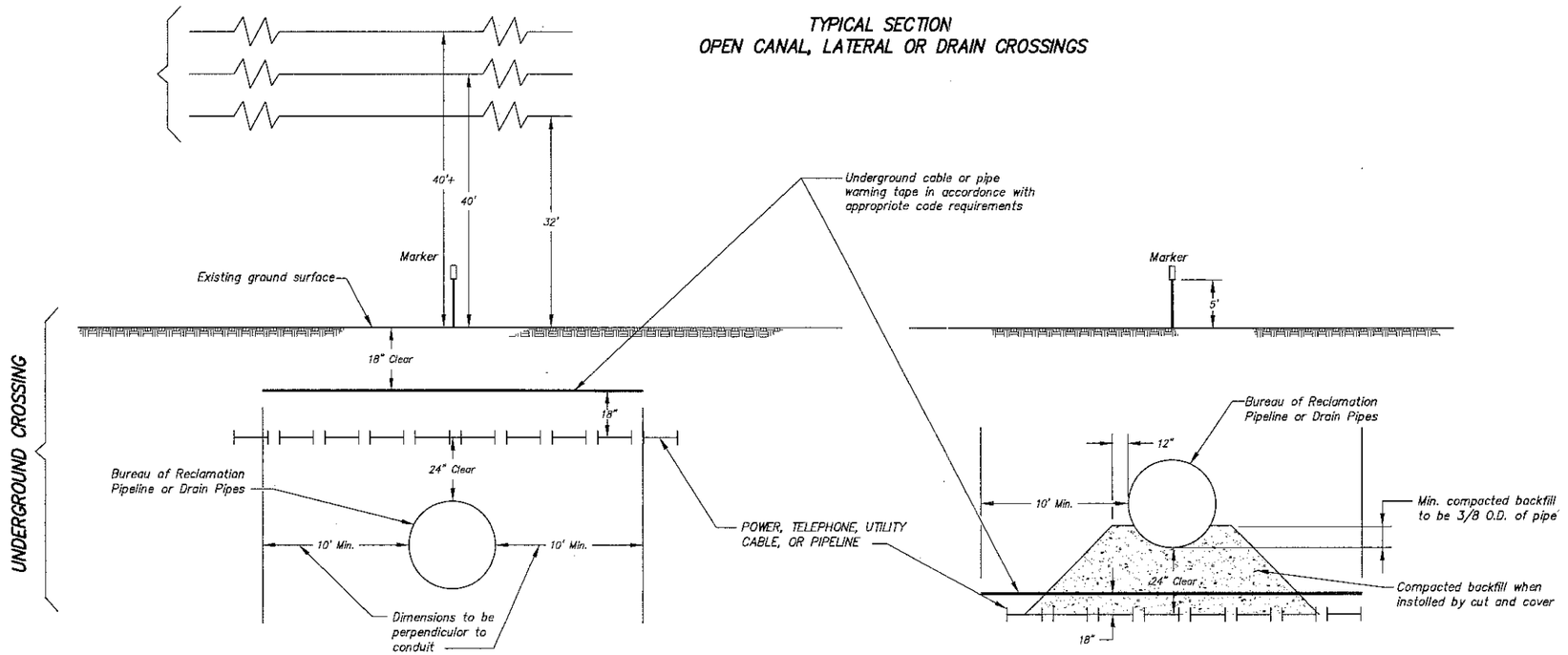

CROSSING PLAN

NOTES

1. Drawing is not to scale.
2. Overhead crossing clearances are minimum for all conditions.
3. Any additional clearances or permits required for construction shall be provided by the Contractor.
4. Conductor clearance shown is for 120 °F and final unlocked sag.
5. Boring and jacking of utilities through canal embankments or protective levees should not be permitted. See "Engineering and O&M Guidelines for Crossings" for additional information.

REV NO		
2	05/17/2011 GEORGE GLIKO, GEORGE GLIKO, PE	600 REVISED
1	03/14/2002 600- L.K.L., P.E.	REDRAWN AND REVISED

ALWAYS THINK SAFETY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
PICK-SLOAN MISSOURI BASIN PROGRAM

STANDARD CROSSING & CLEARANCE REQ.

UTILITY LINES AND CABLES

DESIGNED D. ARBUTHNOT — TECH. APPROVALS SHIMAMOTO
DRAWN J. PORTRA — SUBMITTED D.ARBUTHNOT
CHECKED D. ARBUTHNOT — APPROVED W.W.VERZUH

CADD SYSTEM	CADD FILENAME	DATE AND TIME PLOTTED
AutoCAD Rel. 19.0s (LMS Tech)	02/01/1988	MARCH 12, 2013 11:49
BILLINGS, MONTANA SHEET 1 OF 1		40-600-51

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MILK RIVER PROJECT

CROSSINGS

Vandalia South Canal
Glasgow Unit, Milk River Project-Montana
S1/2, Section 12, T27N, R41E, Valley County

The Vandalia South Canal delivers irrigation water from the Milk River to farmlands located along the south side of the Milk River. The canal is approximately 46 miles long and has a diversion capacity of 300 cubic feet per second. The irrigation season normally runs from mid-April through September 30th of each year. Depending on snow-pack and rainfall, the irrigation season can vary in length.

The proposed Keystone XL Pipeline will cross the canal at approximate Station 2375+00±50. Exhibit A shows the proposed pipeline crossing with respect to the canal. Exhibit B shows the profile of the canal in the vicinity of the pipeline crossing and the typical cross section of the canal.

Below are the original design dimensions of the canal in the vicinity of the proposed pipeline crossing. Actual dimensions may vary from these values. TransCanada is responsible for verifying actual field dimensions.

1. Bottom width—5.00 feet
2. Side slopes—1.5:1
3. Water depth—3.10 feet
4. Downhill bank height—5.00 feet

All rights-of-ways for the Glasgow Unit were obtained using the 1890 Canal Act. Reclamation's easement under the 1890 Canal Act can be described as follows:

> The 1890 Canal Act granted to the United States an unrestrained right-of-way for ditches and canal for any lands west of the 100th Meridian that were patented after that date. The easements are reserved in the original land patents issued for these lands and are blanket easements covering the entire tracts patented. The 1890 Canal Act granted authority to place the ditches and canals wherever needed and as a result no legal description of the canal was necessary or required to be recorded. Wherever the canal is located is the defined area of use. This includes any supporting features including but not limited to access roads and areas alongside the canal needed for operation and maintenance of the canal.

Because the United States easement is first in time, any following easements granted by the underlying landowner will be subject to the easement rights of the United States and cannot unreasonably interfere with the United States project.

Construction requirements:

1. Utility crossings shall be in compliance with the Engineering and O&M Guidelines for Crossings - Bureau of Reclamation Water Conveyance Facilities (April 2008) located in the Appendix.
2. The pipeline must be installed to ensure the minimum clearances shown on Drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.

3. The canal must remain in operation during the irrigation season. If the pipeline crossing is made during the irrigation season, the pipe must be bored under the canal.
4. If the pipeline crossing is made during the non-irrigation season, the canal may be open cut. If the canal is open cut, all backfill within the easement boundaries shall be compacted to 95% density in accordance with specifications Section 02302 – Compacting Earth Materials.
5. All disturbed areas shall be shaped to facilitate natural drainage and reseeded in accordance with Section 02924 – Seeding and Soil Supplements.
6. Pipeline markers and signs shall be installed on both sides of the canal.
7. Provide 5 days prior notice work on the Government easement. No work shall be done without the presence of a Government Representative. Contact Mr. Tyler Hillman, Field Manager, Glasgow Irrigation District at 406-228-2346 and Mr. Steve Davies, Montana Area Office at 406-247-7322.

Lateral V-235
Glasgow Unit, Milk River Project-Montana
W1/2, Section 12, T27N, R41E, Valley County

Lateral V-235 delivers irrigation water from the Vandalia South Canal to farmlands located along the south side of the Milk River. The irrigation season normally runs from mid-April through September 30th of each year. Depending on snow-pack and rainfall, the irrigation season can vary in length. Lateral V-235 also has a toe drain system that discharges into Main Drain VW22.

Exhibit A shows the proposed pipeline crossing with respect to the lateral. A plan and profile drawing is not available for the lateral or the toe drain. TransCanada is responsible for verifying actual field conditions.

All rights-of-ways for the Glasgow Unit were obtained using the 1890 Canal Act. Reclamation's easement under the 1890 Canal Act can be described as follows:

> The 1890 Canal Act granted to the United States an unrestrained right-of-way for ditches and canal for any lands west of the 100th Meridian that were patented after that date. The easements are reserved in the original land patents issued for these lands and are blanket easements covering the entire tracts patented. The 1890 Canal Act granted authority to place the ditches and canals wherever needed and as a result no legal description of the canal was necessary or required to be recorded. Wherever the canal is located is the defined area of use. This includes any supporting features including but not limited to access roads and areas alongside the canal needed for operation and maintenance of the canal.

Because the United States easement is first in time, any following easements granted by the underlying landowner will be subject to the easement rights of the United States and cannot unreasonably interfere with the United States project.

Construction requirements:

1. Utility crossings shall be in compliance with the Engineering and O&M Guidelines for Crossings - Bureau of Reclamation Water Conveyance Facilities (April 2008) located in the Appendix.
2. The pipeline must be installed to ensure the minimum clearances shown on Drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.
3. The canal and canal toe drain system must remain in operation during the irrigation season. If the pipeline crossing is made during the irrigation season, the pipe must be bored under the canal.
4. If the pipeline crossing is made during the non-irrigation season, the canal may be open cut. If the canal is open cut, all backfill within the easement boundaries shall be compacted to 95% density in accordance with specifications Section 02302 – Compacting Earth Materials.
5. All disturbed areas shall be shaped to facilitate natural drainage and reseeded in accordance with Section 02924 – Seeding and Soil Supplements.
6. Pipeline markers and signs shall be installed on both sides of the canal.

7. Provide 5 days prior notice work on the Government easement. No work shall be done without the presence of a Government Representative. Contact Mr. Tyler Hillman, Field Manager, Glasgow Irrigation District at 406-228-2346 and Mr. Steve Davies, Bureau of Reclamation, Montana Area Office at 406-247-7322.

Main Drain VW22
Glasgow Unit, Milk River Project-Montana

W1/2, Section 12, T27N, R41E, Valley County

Main Drain VW22 carries surface and subsurface water off of farmlands to the Milk River. Flows occur year round, however they increase during the irrigation season which normally runs from mid-April through September 30th of each year. Depending snow-pack and rainfall, the irrigation season can vary in length.

Exhibit A shows the proposed pipeline crossing with respect to the drain. A plan and profile drawing is not available for the drain. TransCanada is responsible for verifying actual field conditions.

All rights-of-ways for the Glasgow Unit were obtained using the 1890 Canal Act. Reclamation's easement under the 1890 Canal Act can be described as follows:

> The 1890 Canal Act granted to the United States an unrestrained right-of-way for ditches and canal for any lands west of the 100th Meridian that were patented after that date. The easements are reserved in the original land patents issued for these lands and are blanket easements covering the entire tracts patented. The 1890 Canal Act granted authority to place the ditches and canals wherever needed and as a result no legal description of the canal was necessary or required to be recorded. Wherever the canal is located is the defined area of use. This includes any supporting features including but not limited to access roads and areas alongside the canal needed for operation and maintenance of the canal.

Because the United States easement is first in time, any following easements granted by the underlying
landowner will be subject to the easement rights of the United States and cannot unreasonably interfere with the United States project.

Construction requirements:

1. Utility crossings shall be in compliance with the Engineering and O&M Guidelines for Crossings - Bureau of Reclamation Water Conveyance Facilities (April 2008) located in the Appendix.
2. The pipeline must be installed to ensure the minimum clearances shown on Drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.
3. The drain must remain in operation and the pipe must be bored under the drain.
4. All disturbed areas shall be shaped to facilitate natural drainage and reseeded in accordance with Section 02924 – Seeding and Soil Supplements.
5. Pipeline markers and signs shall be installed on both sides of the drain.
6. Provide 5 days prior notice work on the Government easement. No work shall be done without the presence of a Government Representative. Contact Mr. Tyler Hillman, Field Manager, Glasgow Irrigation District at 406-228-2346 and Mr. Steve Davies, Montana Area Office at 406-247-7322.

Approximate Keystone Pipeline Route

INDEX MAP

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- TRANSMISSION LINE—W.A.P.A.
- INTERCONNECTION
- POWER PLANT—U.S.C.E.
- PUMPING PLANT—W.A.P.A.
- AREA BENEFITED BY PROJECT WORKS
- PROJECT HEADQUARTERS
- W.A.P.A. WESTERN AREA POWER ADMINISTRATION
- U.S.C.E. UNITED STATES CORPS OF ENGINEERS
- WILDLIFE MANAGEMENT AREA

UNITED STATES
DEPARTMENT OF THE INTERIOR
JAMES G. WATT, SECRETARY
BUREAU OF RECLAMATION
ROBERT N. BROADBENT, COMMISSIONER

MILK RIVER PROJECT

MONTANA

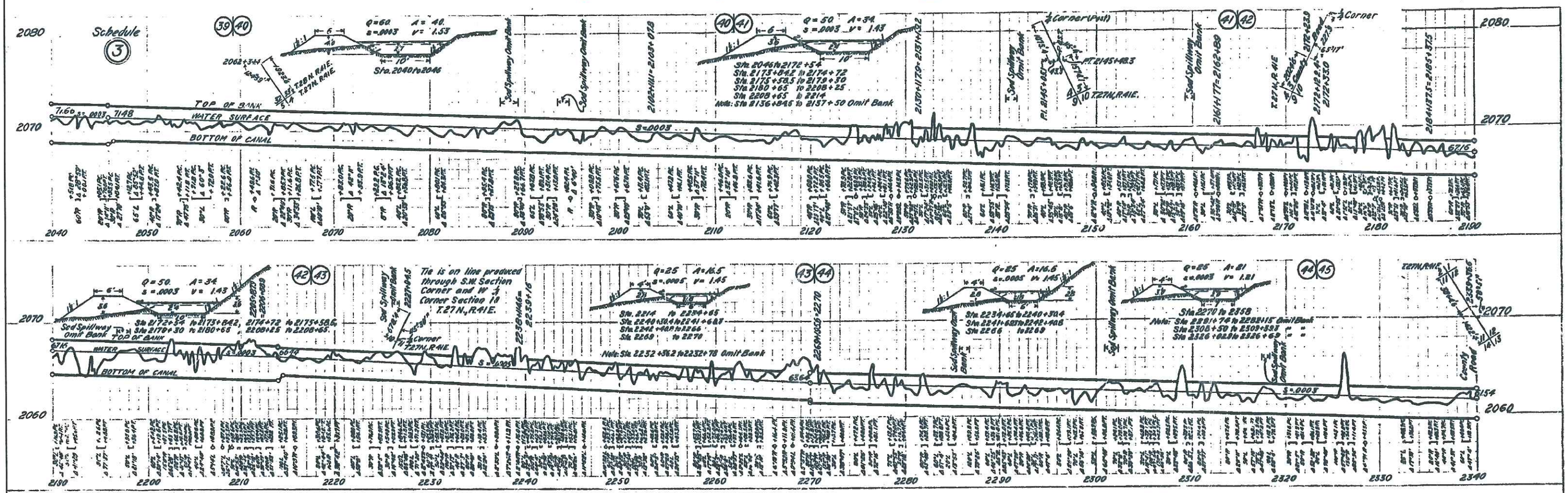
GREAT PLAINS REGION

MAP NO. 15-600-137

NOVEMBER 1983

☆U.S. GOVERNMENT PRINTING OFFICE: 1993—838-935

Profile View - Keystone Pipeline Crossing Vandalia Main Canal



This drawing is amendatory of and supplemental to Drawings Nos 9 and 10 of 16, Accession Nos. 14344 and 14345 Schedule 3, Specifications 256 and is hereby accepted as lieu of the same. It is understood that this change is made in pursuance of paragraph 18 of contract specifications, and the United States is hereby relieved from any and all claims of any nature whatsoever arising by virtue of or on account of such change.

May 14, 1914 — J. E. Wilson, Contractor

DEPARTMENT OF THE INTERIOR
UNITED STATES RECLAMATION SERVICE
MILK RIVER PROJECT MONTANA
VANDALIA SOUTH CANAL
PROFILE STATION 2040 TO 2448+06
SCALES AS SHOWN
FEBRUARY 6, 1914

H. Ulsberg Supervising Engineer — W. R. Schlecht, Project Engineer

15-600-480-63

SCHEDULE 3

Exhibit C

Sheet 3 of 3

Project Engineer May 9, 1914 February 1914

Supervising Engineer February 21, 4 May 20, 1914

C-464 G-1

S-5152

BUFFALO RAPIDS PROJECT

CROSSINGS

Glendive Main Canal
Buffalo Rapids Project-Montana

NE1/4, Section 10, T13N, R53E, Dawson County

The Glendive Main Canal delivers irrigation water from the Yellowstone River to farmlands located along the north side of the Yellowstone River. The canal is approximately 34 miles long and has a diversion capacity of 330 cubic feet per second. The irrigation season normally runs from May 1st through September 30th of each year.

The proposed Keystone XL Pipeline will cross the canal at approximate Station 309+00±10. Exhibit A shows the proposed pipeline crossing with respect to the canal. Exhibit B shows the plan view and the right of way widths. Exhibit C shows the profile and the typical cross section of the canal in the vicinity of the pipeline crossing.

Below are the original design dimensions of the canal in the vicinity of the proposed pipeline crossing. Actual dimensions may vary from these values. TransCanada is responsible for verifying actual field dimensions.

1. Bottom width—12.00 feet
2. Side slopes—1.5:1
3. Water depth—6.4 feet
4. Downhill bank height—9.00 feet
5. Easement width—125 feet total (50 feet left of centerline and 75 feet right of centerline)

Construction requirements:

1. Utility crossings shall be in compliance with the Engineering and O&M Guidelines for Crossings - Bureau of Reclamation Water Conveyance Facilities (April 2008) located in the Appendix.
2. The pipeline must be installed to ensure the minimum clearances shown on Drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.
3. The canal must remain in operation during the irrigation season. If the pipeline crossing is made during the irrigation season, the pipe must be bored under the canal.
4. If the pipeline crossing is made during the non-irrigation season, the canal may be open cut. If the canal is open cut, all backfill within the easement boundaries shall be compacted to 95% density in accordance with specifications Section 02302 – Compacting Earth Materials.
5. All disturbed areas shall be shaped to facilitate natural drainage and reseeded in accordance with Section 02924 – Seeding and Soil Supplements.
6. Pipeline markers and signs shall be installed on both sides of the canal.
7. Provide 5 days prior notice work on the Government easement. No work shall be done without the presence of a Government Representative. Contact Mr. Mike Carlson, Manager, Buffalo Rapids District No. 1 at 406-377-6799 and Mr. Steve Davies, Bureau of Reclamation, Montana Area Office at 406-247-7622.

Lateral 4.7-Pipeline 2, Glendive Unit
Buffalo Rapids Project-Montana
SE1/4NW1/4, Section 14, T13N, R53E, Dawson County

Lateral 4.7-Pipeline 2 delivers irrigation water from the Glendive Main Canal to farmlands located along the north side of the Yellowstone River. The irrigation season normally runs from May 1st through September 30th of each year.

The Buffalo Rapids Irrigation District converted the original open lateral into a pipeline. Reclamation currently does not have any engineering data on the existing pipeline. Exhibit A shows the proposed pipeline crossing with respect to the pipeline.

Construction requirements:

1. Utility crossings shall be in compliance with the Engineering and O&M Guidelines for Crossings - Bureau of Reclamation Water Conveyance Facilities (April 2008) located in the Appendix.
2. Keystone XL Pipeline must coordinate with Mr. Mike Carlson, Manager, Buffalo Rapids District No. 1 at 406-939-1750 to obtain information concerning the Lateral pipeline
3. The Keystone XL Pipeline must be installed to ensure the minimum clearances shown on Drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.
4. The Lateral pipeline must remain in operation during the irrigation season.
5. When the Keystone XL Pipeline crossing is made, the existing Lateral pipeline will be carefully located to prevent damage. The Lateral pipeline shall be supported to prevent damage. All backfill under the pipe and for 10 feet on either side shall be compacted to 95% density in accordance with specifications Section 02302 – Compacting Earth Materials.
6. All disturbed areas shall be shaped to facilitate natural drainage and reseeded in accordance with Section 02924 – Seeding and Soil Supplements.
7. Pipeline markers and signs shall be installed on both sides of the Lateral pipeline or as directed by Mr. Mike Carlson, Manager, Buffalo Rapids District No. 1.
8. Provide 5 days prior notice work on the Government easement. No work shall be done without the presence of a Government Representative. Contact Mr. Mike Carlson, Manager, Buffalo Rapids District No. 1 at 406-377-6799 and Mr. Steve Davies, Bureau of Reclamation, Montana Area Office at 406-247-7622.

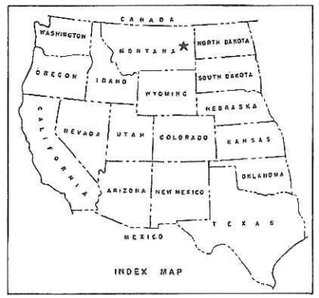
Glendive Open Drain
Buffalo Rapids Project-Montana
SE1/4NW1/4, Section 14, T13N, R53E, Dawson County

Glendive Open Drain carries surface and subsurface water off of farmlands to the Yellowstone River. Flows occur year round, however they increase during the irrigation season which normally runs from May 1st through September 30th of each year.

Exhibit A shows the proposed pipeline crossing with respect to the drain. A plan and profile drawing is not available for the drain. TransCanada is responsible for verifying actual field conditions.

Construction requirements:

1. Utility crossings shall be in compliance with the Engineering and O&M Guidelines for Crossings - Bureau of Reclamation Water Conveyance Facilities (April 2008) located in the Appendix.
2. The pipeline must be installed to ensure the minimum clearances shown on Drawing 40-600-51 with a minimum vertical separation clearance of 72-inches.
3. The drain must remain in operation and the pipe must be bored under the drain.
4. All disturbed areas shall be shaped to facilitate natural drainage and reseeded in accordance with Section 02924 – Seeding and Soil Supplements.
5. Pipeline markers and signs shall be installed on both sides of the drain.
6. Provide 5 days prior notice work on the Government easement. No work shall be done without the presence of a Government Representative.
7. Contact Mr. Mike Carlson, Manager, Buffalo Rapids District No. 1 at 406-377-6799 and Mr. Steve Davies, Bureau of Reclamation, Montana Area Office at 406-247-7622.



INDEX MAP

Approximate Keystone Pipeline Route

GLENDIVE

D A W S O N

P R A I R I E

C U S T E R

YELLOWSTONE

POWDER RIVER

Colgate

Hoyt

Marsh

Calypso

Sougus

Kinsey

Mildred

Deer Cr.

Upper Seven Mile Creek

Sand Creek

Whoopup Creek

Cedar Creek

Bad Route Creek

Cracker Box Creek

Timber Creek

Cottonwood Creek

Magpie Cr.

Lost Wens Cr.

Crooked Cr.

Custer Creek

Harris Creek

Sand Creek

Ash Cr.

Kahn Coulee

Ten Mile Cr.

Four Mile Cr.

Cottonwood Cr.

Dry Cr.

Glendive L.

Glendive B.M. Cr.

Cherry Creek

Plenty Cr.

N. Fork Cherry Creek

E. Fork Cedar Cr.

Cedar Cr.

Custer Creek

Ash Creek

Creek

R 47 E
R 48 E
R 49 E
R 50 E
R 51 E
R 52 E
R 53 E
R 54 E
R 55 E
R 56 E

T 16 N
T 15 N
T 14 N
T 13 N
T 12 N
T 11 N
T 10 N

47°
105°

EXPLANATION

- CANAL
- SIPHON
- PUMPING PLANT
- SUBSTATION-U.S.B.R.
- AREA BENEFITED BY PROJECT WORKS
- PROJECT HEADQUARTERS
- TRANSMISSION LINE-U.S.B.R.
- TRANSMISSION LINE-PRIVATE
- STEAM PLANT-PRIVATE
- SUBSTATION-PRIVATE

UNITED STATES
DEPARTMENT OF THE INTERIOR
CECIL D. ANDRUS, SECRETARY
BUREAU OF RECLAMATION
R. KEITH HIGGINSON, COMMISSIONER

BUFFALO RAPIDS PROJECT

MONTANA
GREAT PLAINS REGION
MAP NO. 243-600-53

SCALE 2 0 2 4 6 MILES
2 0 2 4 6 KILOMETERS

SEPTEMBER 1977

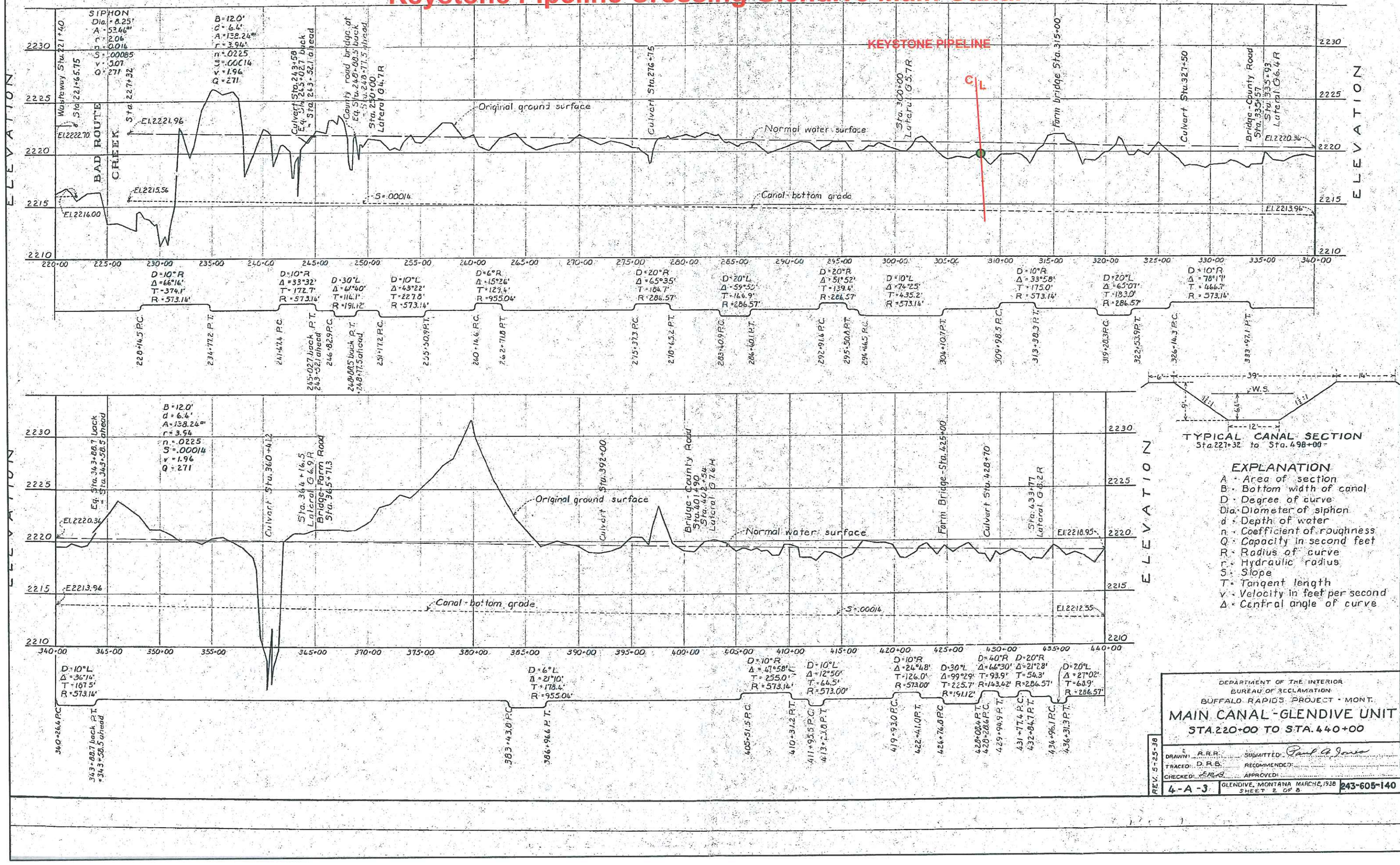
☆U.S. GOVERNMENT PRINTING OFFICE: 1993—838-921

Plan View - Keystone Pipeline
Crossing Glendive Main Canal

Sta. 309+00 +/- 10

Exhibit B

Keystone Pipeline Crossing Glendive Main Canal



DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
BUFFALO RAPIDS PROJECT - MONT.

MAIN CANAL - GLENDIVE UNIT
STA. 220+00 TO STA. 440+00

DRAWN: R.R.R. SUBMITTED: Paul A. Jones
TRACED: D.R.B. RECOMMENDED:
CHECKED: R.R.R. APPROVED:

REV. 5-25-38

4-A-3 | GLENDIVE, MONTANA MARCH, 1938 SHEET 2 OF 8 | 243-605-140

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APPENDIX

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RECLAMATION

Managing Water in the West

Engineering and O&M Guidelines for Crossings

Bureau of Reclamation Water Conveyance Facilities (Canals, Pipelines, and Similar Facilities)

U.S. Department of the Interior
Bureau of Reclamation
Technical Service Center
Denver, Colorado

April 2008

Mission Statements

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to Indian Tribes and our commitments to island communities.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

Engineering and O&M Guidelines for Crossings

Bureau of Reclamation Water Conveyance Facilities (Canals, Pipelines, and Similar Facilities)

Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Official
AOE	authorized operating entity
AWWA	American Water Works Association
CFR	Code of Federal Regulations
CPS	cathodic protection system
DOT	Department of Transportation
HDD	horizontal directional drilling
kV	kilovolt(s)
MERL	Materials Engineering and Research Laboratory
O&M	operations and maintenance
Reclamation	Bureau of Reclamation
ROW	right-of-way
WB-67	67-foot wheelbase

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1.0 PURPOSE

These are general guidelines for Bureau of Reclamation (Reclamation) offices to follow when reviewing the engineering and operations and maintenance (O&M) factors in outside entity requests for authorization to cross (encroach upon) Reclamation lands that contain project features such as levees, canals, pipelines, or other water conveyance facilities owned or administered by Reclamation. These guidelines include a general overview of the permitting process administered by Reclamation Lands Groups for allowing a particular use on lands where Reclamation holds a fee or an easement right-of-way interest. These engineering and construction recommendations are minimum guidelines for engineers to use in reviewing and evaluating these portions of the applications.

2.0 GENERAL PERMIT INFORMATION

Applicants requesting to cross any Reclamation land, facility, or water body must obtain a written land use authorization from Reclamation. Requirements for obtaining a use authorization to cross Reclamation project land and water surfaces are in the Code of Federal Regulations (CFR) at 43 CFR 429 and Reclamation Manual LND 08-01. The applicant must complete the *Standard Form (SF) 299*, "**Application for Transportation and Utility Systems and Facilities on Federal Lands**," or similar forms in use at the local Reclamation office. The form can be obtained by contacting the involved Reclamation office, or it can be accessed electronically at Reclamation's Web site at: <http://www.usbr.gov/pmts/lands>.

Applicants can contact their local Reclamation office to discuss their proposed use before filing an application for a use authorization.

3.0 ENGINEERING AND O&M REVIEW CONSIDERATIONS

3.1 Introduction

Technical review of the crossing evaluates impacts on any existing Reclamation facility and **does not determine the adequacy of the crossing design for the applicant's intended purpose.**

The use authorization or consent document specifies criteria which, if followed, would not be deemed unreasonable interference. These review guidelines are strictly limited to those criteria which:

- Protect Reclamation's facility and/or appurtenant facility from damage
- Ensure unrestricted flow and quality of water in Reclamation's facility
- Do not diminish the ability to perform O&M of Reclamation's facility, including access
- Prevent any burden of liability

These guidelines are provided as recommendations that apply to most Reclamation facilities. Each Reclamation office and/or authorized operating entity (AOE) should apply these guidelines using **sound engineering judgment** that best applies to their facilities and existing conditions. Additional Reclamation guidelines for specific locations (e.g., Central Arizona Project Reach 11 Basin Guidelines) may also apply and may be provided to applicants when necessary. These guidelines are minimums, and local conditions may be more stringent depending on the direct impacts to facilities and lands. AOEs may have additional requirements.

Uses that may be deemed reasonable within Reclamation pipeline easements include greenbelts, asphalt roadways, flexible pavement parking lots, transverse curbs and gutters, and sidewalks. Canals and pipelines may have overhead power and telephone lines (but not their supporting poles), transverse fences with gated openings (no walls), and similar surface and overhead structures.

3.2 General

The following individual items should be addressed by the applicant and evaluated by Reclamation and/or AOE as they may affect the Reclamation facility's engineering and O&M aspects. If unusual conditions are proposed for the encroaching structure or unusual field conditions within a Reclamation facility right-of-way (ROW) are encountered, Reclamation reserves the right to impose more stringent criteria than prescribed in these guidelines.

1. Structures that should not be constructed on Reclamation pipeline or canal ROW (whether fee owned or easement) include foundations, buildings, garages, carports, trailers, street light standards, supports for large signs, walls, longitudinal fences (except security/safety fences), power or telephone poles, and similar surface structures.

2. Prior to construction, a joint inspection should be conducted and the condition of existing facilities documented. Reclamation's ROW should be restored to pre-existing conditions following completion of work.

3. When applications are requesting public use of trails and maintenance roads adjacent to or crossing Reclamation canals, these facilities should be fenced for safety to separate them from open canal water, except when Reclamation's ROW is used as a greenbelt and the applicant accepts legal hazard responsibility. Trails and maintenance roads should be fenced on an as-needed basis whenever such fencing is warranted for public safety, restricted access, security, etc. If a fence is allowed within Reclamation's ROW, Reclamation should approve the fence materials. Any gates allowed within Reclamation's ROW should be at least 16 feet wide. Reclamation will be provided with full access through any fences or gates.

4. Prior to construction of any structure that encroaches within a Reclamation pipeline or canal ROW, a "pothole excavation" should be made to determine the locations of any existing Reclamation and non-Reclamation facilities and their appurtenant features that may be affected. Potholing is the practice of digging test holes to expose underground utilities to determine the horizontal and vertical location of the utility.

   All work within 18 inches of the facility should be done using hand-held tools only. The excavation should be made by or in the presence of Reclamation and/or AOE personnel. The presence of a Reclamation and/or AOE inspector may be required throughout the excavation process, but this presence in no way relieves the applicant or their contractor of responsibility.

   The resultant elevation information should be delineated on the profile view and labeled as:

   POTHOLED ELEVATION XX.X
   Surface Elevation XX.X

   The pothole excavation should be filled in, or a safety fence installed, prior to departing the site each day.

5. If Reclamation facilities need to be modified to avoid adverse impacts from the applicant's crossing facility, the applicant should be responsible for the cost of such modifications.

6. A temporary permit may be required for visual inspections, ground and aerial surveys,[1] or potholing that requires physical entrance onto a Reclamation facility. **A use authorization or consent document issued by Reclamation and/or AOE should be obtained prior to entering or crossing Reclamation's ROW for any activity.**

7. Applications should include a project description, calculations, specifications, and detailed construction plans showing plan views, profiles and sections, and grading plans of proposed work within or adjacent to Reclamation's ROW. Plans should show an easily recognizable boundary (tied to a known corner) and Reclamation's ROW and Reclamation stationing or mile post designation.

   All Reclamation facilities should be shown and labeled (e.g., "Centerline of xx-inch Reclamation Pipeline," "Reclamation Communication and Control Cable," etc.) The type and weight of the construction equipment crossing Reclamation pipelines, roads, and bridges as well as the crossing locations should be included. Additional information, as identified in following individual specific feature sections of these guidelines, should also be included with the application for review.

   Any engineering or land survey drawing should contain the appropriate registered engineer's or land surveyor's stamp and signature. A construction schedule outlining the anticipated duration of the construction should be submitted. A minimum of two[2] copies of the application (including calculations, specifications, and plans) should be submitted to Reclamation and/or AOE for review and approval.

8. For crossings of all Reclamation facilities, Reclamation and/or AOE personnel familiar with the facilities (including cathodic protection systems) will obtain and provide copies of existing files showing information about existing buried facilities (center of pipeline, depth of cover, size of pipe, class of pipe, etc.) to the applicant.

9. Existing Reclamation facilities (e.g., canal lining, canal check structure, turnout structure, etc.) and appurtenances (e.g., existing blow-offs, air valves, vents, manholes, and/or cathodic protection test stations) and existing non-Reclamation facilities on Reclamation's ROW (e.g., petroleum pipelines, natural gas pipelines, communications lines, powerlines, water lines, sewer lines, storm drain lines, etc.) **should be protected** in place prior to and during construction.

[1] Aerial surveys require placing on-the-ground survey control markers.
[2] Revise per local Reclamation office and/or AOE practice.

The applicant and/or their contractor may be liable for all damages to Reclamation facilities and appurtenances as a result of construction and for any other damages or losses suffered by Reclamation or its water contractors, including power, irrigation, municipal and industrial water supply, and communication losses.

10. Trench excavation should comply with the most current Occupational Safety and Health Administration standards or Reclamation Health and Safety Standards, whichever are more stringent. Trench backfill should be placed in 4- to 6-inch lifts if hand compacted or no more than 8-inch lifts if power compacted. Trench backfill within Reclamation's ROW should be compacted to 95 percent relative compaction (ASTM D 698, Standard Proctor) (or 90 percent of ASTM D 1557). Mechanical compaction using heavy equipment (greater than 2,000 pounds) should not be used within 18 inches of the Reclamation pipeline. Flowable fill (or controlled low strength material) should be substituted for compacted pipe embedment under canals and may be used when crossing pipelines.

11. Erosion control measures, including re-vegetation, should be implemented after completing construction.

12. If existing drainage features are to be modified during construction, detailed drawings showing the proposed drainage replacement/ restoration should be submitted with the application for review and approval. The applicant is responsible for the care and handling of storm water runoff both during and after construction.

13. The applicant should not divert surface runoff[3] toward Reclamation canal or canal embankments. The 100-year storm[4] surface runoff should use detention basins outside of Reclamation's ROW. Lined drainage channels should be designed to transfer flow from the detention basins to the existing cross drainage facilities that drained the original area. Also refer to "4.4 Storm Water Cross Drainage."

14. Proposed temporary or permanent modifications to the existing cover over Reclamation pipelines should be subject to review and approval by Reclamation and/or AOE. Design parameters for roadway, parking lot, and driveway crossings over the pipe should also be subject to review and approval by Reclamation and/or AOE.

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[3] Subdivision or commercial development on the uphill side of canals that pave large areas and have large roof areas will greatly increase peak storm runoff—most city development requires retention basins. Applicants should provide the same retention basins that are required for similar development projects.

[4] Revise per Reclamation field office for specific canal if a higher storm frequency is required.

15. When a Reclamation pipeline system being crossed has pipe with an "A" cover pipe designation (less than 5 feet of earth), the applicant is to analyze the crossing to show "A" pipe load carrying capability exists to meet their carrying requirements or replace the "A" pipe with pipe of sufficient load carrying capability.

16. Reclamation's ongoing O&M activities should not be disrupted during construction. The primary or secondary operating road should be kept available for Reclamation and/or AOE use at all times.

17. Detectable warning tape may be required over below-ground utilities. Refer to "3.3 Detectable Warning Tape."

18. The points where the proposed utilities enter and exit Reclamation's ROW should be plainly and permanently marked by sign posts extending 5 feet above grade. Applicants should provide sign posts directly above their utilities and at all angle points within Reclamation's ROW. The distance between adjacent sign posts should not exceed 500 feet. Sign posts should contain the name of owner/operator, contents of the pipeline, utility identification, and emergency contact telephone number. Sign posts for angle points that lie within roads or canals should be offset and have a reference noted. The locations of the sign posts should be shown on the plans.

19. Following completion of work, applicants should provide as-built drawings of their facilities on Reclamation's ROW. Reclamation as-built drawings are to be updated by the appropriate Reclamation office and/or AOE to reflect the crossing. As-built drawings may be maintained by the AOE, but should remain accessible to Reclamation upon request.

3.3 Detectable Warning Tape

Detectable warning tape may be required over below-ground utilities situated within Reclamation's ROW and should be a minimum of 18 inches above the utility and between 18 and 30 inches below the ground surface. Warning tapes should conform to the following specifications:

a. For potable water lines, the warning tape should be a 3-inch-wide blue detectable tape imprinted with "**CAUTION BURIED POTABLE WATER LINE.**"

b. For nonpotable water lines, the warning tape should be a 3-inch-wide purple detectable tape imprinted with "**CAUTION BURIED NONPOTABLE WATER LINE.**"

c. For sewer and storm drain lines, the warning tape should be a 3-inch-wide green detectable tape imprinted with "**CAUTION BURIED (type) LINE.**"

d. For gas, oil, and steam chemical lines, the warning tape should be a 3-inch-wide yellow detectable tape imprinted with "**CAUTION BURIED (type) LINE.**"

e. For telecommunications, telephone, and television conduit(s), the warning tape should be a 3-inch-wide orange detectable tape imprinted with "**CAUTION BURIED (type) CONDUIT.**"

f. For electrical, street lighting, and traffic signal conduit(s), the warning tape should be a 3-inch-wide red detectable tape imprinted with "**CAUTION BURIED (type) CONDUIT.**"

4.0 SPECIFIC FEATURE REVIEW GUIDELINES

4.1 Bridges

1. New bridge crossings (vehicular, pedestrian, and utility) should be perpendicular (between 70 and 90 degrees) to the centerline of the water conveyance facility and at locations approved by Reclamation and/or the AOE. Exceptions to the policy may be considered on an individual basis.

2. Public use bridges in urban areas should be spaced no closer together than 1/3 mile (about 4 blocks or 1,700 feet) apart. This is to ensure O&M operations are not overly restricted.

3. Bridge crossings should be of free span design. Consideration of any anticipated (known or ongoing) canal subsidence issues, anticipated raising of the canal lining, or anticipated increases in the canal's high water level should be made. The minimum vertical clearance between the bottom of the superstructure and the top of the canal lining should be 3 feet. For unlined canals, the vertical clearance may be measured to the high water level. If this minimum clearance is reduced by subsidence or by future Reclamation modifications to the canal lining, the minimum clearance should be re-established at the applicant's expense. The minimum horizontal clearance from the face of the abutment to the top of the canal lining should be 5 feet. For unlined canals, the horizontal clearance may be measured to the high water level.

These clearances are suggested to minimize impact on the canal section during construction and future inspections and O&M. Applicants may request to re-construct a canal section if Reclamation's operations are impacted by close construction during periods when the canal is normally unwatered. If so, vertical clearances may be reduced to 1 foot and horizontal clearance to 3 feet.

4. Canal O&M roads should intersect public roads at bridges at right angles for proper visibility. This may require the applicant to acquire additional ROW for use if the existing canal ROW is not sufficient. American Association of State Highway and Transportation Official (AASHTO) criteria for sight distances at the intersection of O&M roads and roadways at new bridges should be met to allow O&M vehicles to cross them safely.

5. Driving piles at concrete-lined canals should not be permitted. Any abutment foundation support piles, at concrete-lined canals, should be drilled and cast-in-place.

   At a minimum, the applicant's drilling and piling plan should include:

   - Drilling methods and equipment
   - Methods for preserving existing foundation material
   - Methods and equipment to determine the presence of quick soil conditions or scouring and caving
   - The proposed method for casing installation and removal if casings are used
   - Methods and equipment for accurately determining the depth of concrete and actual or theoretical volume placed

   At a minimum, the applicant's contingency plan should include:

   - Means to repair in a certain time
   - Minimum flows after event
   - Review of geotechnical conditions surrounding the pile locations
   - Assessment of how the proposed mitigations will address geotechnical conditions
   - Methods for restoring foundation material

- A list of material, equipment, and personnel with qualifications to be used during mitigation work

- A seal from a Professional Engineer on all relevant plans and drawings

6. The submitted plan drawings for the bridge should contain the following information:

    a. Superstructure, abutments, railings, embankments, and drainage, including details and sections

    b. Type of materials (concrete, steel, timber, etc.) used for different members

    c. Details of cast-in-place foundation piles, if any, on both sides of the canal

    d. The elevation of the bottom of the superstructure and the clearance between the top of the canal lining (or high water level if unlined canal) to the superstructure or bottom of deck slab, whichever is lowest

    e. Design loadings

    f. Design standards on which the bridge is based (AASHTO, etc.)

7. The calculations and specifications for the bridge should be submitted to Reclamation and/or AOE for review.

8. The right lane turn radius from the new road onto a Reclamation operating road should comply with the provisions of a 67-foot wheelbase[5] (WB-67) truck turning template in the AASHTO manual on Geometric Design of Highway and Streets.

9. Details of any proposed utilities to be attached to an existing bridge include:

    a. Anchor bolt locations should not intercept the critical reinforcing steel of the bridge.

[5] The field office should adjust these provisions according to anticipated needs.

b. Utilities should be placed and anchored under bridge decks and through utility openings, if they are present. The utility should be placed off center in the utility opening, if possible, to allow for future utility additions.

c. If an expansion joint is used in the pipeline, the joint should be placed near the bridge deck expansion joint.

d. Holes through bridge concrete or abutment and retaining walls for passage of utilities should be allowed by core drilling. The annular space between the utility and core hole surface should be completely filled with an elastomeric sealant to prevent loss of material or water piping from behind the wingwalls and abutments.

e. Submit calculations showing the effects of the weights of the proposed utilities on the load carrying capacity of the bridge for Reclamation review.

f. Intermediate supports for the utility should withstand the same seismic load considerations as the bridge.

g. Load limit signs should be placed adjacent to the bridge, as required under AASHTO criteria.

h. Beam guardrails should be installed at bridges and bridge approaches, as required under AASHTO criteria.

10. The applicant will be responsible for changes to Reclamation existing ROW; bridge O&M approach roads; existing fencing, gates, and signs; and the addition of new fencing, O&M gates, cattle guards, signs, etc.

4.2 Landscaping

1. No landscaping or other changes in ground surfaces within Reclamation pipeline and canal/lateral ROW should be made without advance written permission of Reclamation through the application process. Landscaping changes may (1) limit, prevent, or hamper O&M access; (2) increase the costs of operations and maintenance of the facility; (3) impact facility reliability; or (4) create a public nuisance or liability issue.

2. Open space with natural hiking trails and walkways may be permitted if vehicle access to Reclamation pipeline and appurtenant facilities for patrol and maintenance is provided.

3. The following may apply within Reclamation's ROW:

    a. The easement may be used as a greenbelt upon Reclamation approval.

    b. Ground cover and shrubs are permitted upon Reclamation approval.

    c. Trees and vines should not be allowed. See Appendix B of *Review of Operation and Maintenance Program Field Examination Guidelines* (reproduced as appendix B at the end of these guidelines).

4. All temporary or permanent changes in ground surfaces within Reclamation pipeline and canal ROW are considered encroaching structures and are handled as such. Earthfills and cuts on adjacent property should not encroach onto Reclamation pipeline and canal ROW. Excavations of adjacent property (even property not within Reclamation's purview) within the projection of the Reclamation embankment line may impact embankment stability and should be evaluated.

5. Permanent landscaping structures should not be allowed within the exterior limits of a Reclamation linear facility ROW (fee owned or easement).

6. Pressurized lawn and park sprinkler irrigation lines (3-inch maximum size) and isolation valves within Reclamation easements that run parallel to a Reclamation pipeline should be installed at least 15 feet from the edge of the Reclamation pipeline.

    Irrigating lawns and flower beds along canal embankments should not overwater the area or threaten the embankment stability.

4.3 Roadway Crossing

Note: This type of encroachment also includes parking areas and recreational trails.

1. The applicant should submit a grading plan as part of the application.

2. If the roadway crosses a Reclamation pipeline system that has a cover pipe designation of "A," refer to "3.2 General."

3. If the applicant intends to modify existing drainage features during construction, detailed drawings showing the proposed drainage replacement/restoration should be submitted with the application for review and approval. (Refer to "3.2 General.")

4. If the proposed roadway includes a bridge crossing over a Reclamation canal or pipeline, Reclamation and/or AOE should review and approve the vertical clearance and location of the abutments. (Refer to "4.1 Bridges.")

5. Streets, roads, or parking areas crossing Reclamation pipeline easements are permissible. All streets, roads, and parking surfaces are to be asphalt or other flexible pavement. Depressed curbs or driveways should be provided for Reclamation vehicular access when new roads cross Reclamation pipelines or canals.

6. Roadway ditch drainage should not be allowed to flow into the canal. Drainage should be retained and released in a controlled way to maintain peak discharges that are less than any peak historical runoff rate before these modifications. Applicants should direct drainage to an original sub-basin cross drainage culvert or overchute. (Refer to "3.2 General" and "4.4 Storm Water Cross Drainage.")

7. If existing roadway embankments are to be widened, the work should be conducted in accordance with the provisions of construction in the applicable State Department of Transportation (DOT) Standard Specifications.

4.4 Storm Water Cross Drainage

1. Upslope development impacts historic natural drainage volumes and peak flow rates. Development re-grades and revises drainage sub-basins. Revised ground cover from constructing roads, parking areas, and buildings may result in the need to change the cross drainage features (culverts and/or overchutes) along Reclamation canals.

2. A hydrologic study should accompany all plans that modify the existing drainage across and/or along Reclamation facilities. The study or report should show the proposed flows of the canal and the associated crossings. The drainage study or report should show that the downstream system can accept the flows without creating any flooding to properties adjacent to or downstream of the canal.

3. All drainage crossings, whether existing or proposed, should carry the peak runoff of a 100-year event while preventing any storm water from entering the canal and/or ponding against the canal embankment.

4. Urban runoff should not be allowed to enter into, or drain onto, Reclamation's land. All flows generated outside Reclamation's ROW should enter the storm drain system prior to entering Reclamation's ROW. Piped connections are preferred, but concrete-lined channels may be acceptable upon Reclamation's review.

5. The new crossing under a canal should be designed with 3 feet vertical clearance from the top of the cross drainage structure to the bottom of the canal (or liner). The structure should extend completely across Reclamation's ROW.

6. New overcrossings of the canal should have 2 feet of vertical clearance from the top of the liner and 2 feet of horizontal clearance from the support abutments to the outside edge of the canal lining. The O&M road crossing of the cross drainage structure should be structurally capable of withstanding highway-legal vehicle loadings and provide at least 1 foot of cover in the roadway.

7. Pipe crossing barriers should be installed on all pipe overcrossings.

8. All drainage flow should be discharged to a downstream storm drainage system owned, operated, and maintained by a public agency (such as a city or county) or into areas such as channels, roadways, parks, wetland basins, or other non-private lands that can accept the concentrated flows from the drainage crossing.

9. All drainage from upland property should be collected by the applicant's installed system of curbs and inlets within their property and discharged into a non-Reclamation public agency's drainage system.

10. New drainage system designs will not use ponding against the existing canal embankment for temporary detention of storm runoff that will not immediately pass through existing or new crossings.

    Proposed permanent detention facilities adjacent to Reclamation's property should include engineered fill beyond the canal ROW to provide, at a minimum, a fill-width maintenance access roadway between the canal property and the basin. The applicant shall submit a geotechnical report verifying that the canal embankments can perform as detention basin embankments. The design should provide for sufficient freeboard to contain the 100-year event within the proposed basin adjacent to Reclamation's property and shall have adequate protection from seepage and erosion.

    The ownership and related O&M of the embankments shall be the responsibility of the applicant requesting the crossing.

11. When grading operations upstream of existing canal drainage crossings are scheduled to take longer than a normal construction season to complete, temporary basins shall be installed. These temporary basins should be designed to detain the 100-year event, capture silt from the disturbed area, and meter the flows across the existing drain crossings without spilling flows into the canal.

12. Unless Reclamation specifies otherwise, the applicant should remove or plug and abandon existing drainage crossings that are not used by the development unless they are shown to provide an additional measure of safety for the canal by reducing the likelihood of spill into the canal caused by extreme runoff flows. Otherwise, these crossings should remain in place for Reclamation's benefit and will not require ownership transfer to a public agency.

    These crossings must discharge into the non-Reclamation public agency's storm drainage systems or into areas such as channels, roadways, parks, wetland basins, or other nonprivate lands that can accept the concentrated flows from the drainage crossing in the case of an extreme runoff event.

    Grading in Reclamation property should be preserved or revised to direct extreme runoff flows into these unused drainage crossings without allowing said flows to enter into the canal until the crossings reach their capacity.

4.5 Subdivision

Urban developments are reaching Reclamation's lands and ROWs. These are general guidelines for accommodating development in subdivisions (refer to "3.2 General" and "4.4 Storm Water Cross Drainage").

1. Permanent structures should not be permitted within Reclamation fee-owned linear ROWs.

2. Open space with natural hiking trails and vegetation may be allowable.

3. Where subdivision development is adjacent to a canal, fencing should include these characteristics:

    a. Temporary chain link fences must be installed prior to removing any portion of existing fences.

b. Upon completion of grading for drainage and other work, fencing should be installed along the subdivision's boundary length of the adjacent ROW plus 150 feet beyond the development's property boundary. The fence should be per project standards and at the applicant's expense.

c. The new fence should be located 1 foot outside of Reclamation's ROW. The fence location should be shown on the improvement plans.

4. Use of Reclamation pipeline easements as part of residential subdivision lots should not be allowed. Pipeline easements may be included within the subdivision greenbelt or similar use areas.

5. Drawings should include all proposed improvements (i.e., streets, utilities, landscaping, etc.) within, and adjacent to, Reclamation's ROW.

6. Trees or vines should not be allowed within a Reclamation pipeline or canal ROW. See Appendix B of *Review and Operation and Maintenance Program Field Examination Guidelines* (reproduced as appendix B at the end of these guidelines).

7. Streets, roads, or parking areas using Reclamation easements may be permissible. All streets, roads, and parking surfaces should be asphalt or other flexible pavement. Depressed curbs or driveways should be provided for Reclamation vehicular access when new roads cross Reclamation pipelines or canals.

8. Where fencing is proposed within Reclamation easements, a minimum 16-foot-wide gate should be provided for Reclamation access.

9. Pipelines containing sewage, oil, gasoline, natural gas, or hazardous materials should only cross perpendicular (between 70 and 90 degrees) to the Reclamation pipeline or canal and be installed with the necessary safety measures and separation clearance as required in "4.6 Utility Crossing."

10. Electroliers, posts, etc., should be installed at the maximum distance possible from the edge of the pipeline or canal.

11. If crossing a Reclamation pipeline system that has "A" cover pipe designation, refer to recommendations in "3.2 General."

4.6 Utility Crossing

Note: All pipelines, electrical, and communication lines and conduits are referred to as "utilities" in these guidelines.

4.6.1 Casings

The Reclamation Materials Engineering and Research Laboratory's (MERL) position is to avoid using casing pipes around metallic carrier pipelines (steel, ductile iron, cast iron, reinforced concrete, pretensioned concrete cylinder, etc.) whenever possible. The experience of the corrosion community in general is that these casings often cause corrosion-control problems. Furthermore, dielectric (plastic, fiberglass, etc.) casings, or even dielectrically coated casings, should not be used. They can shield the carrier pipe from receiving cathodic protection current.

Cathodic protection to a buried metallic pipeline is more trouble free and more certain without a casing pipe. MERL recommends relying on effective corrosion control measures on the carrier pipeline rather than relying on a casing pipe (which may shield cathodic protection current) to direct a leak away from Reclamation property.

4.6.2 Overhead Line Crossing

1. Overhead wires across Reclamation pipeline and canal ROWs should be at least 32 feet above all ground levels in the Reclamation ROW. For electrical powerlines of 69 kilovolts (kV) or higher voltage, the minimum clearance should be 40 feet plus 0.25 inch per kV of line-to-line voltage above 450 kV. In any case, the minimum clearance is to be that determined to be needed with an ambient temperature of 120 degrees Fahrenheit.

2. Reclamation has the following requirements for overhead crossings:

    a. Poles or towers should not be allowed within Reclamation's ROW.

    b. Overhead electrical and communication lines should cross perpendicular (between 70 and 90 degrees) to the centerline of the Reclamation facility.

    c. If necessary, fence grounding is to be provided for existing fence lines, especially under power transmission lines.

3. A marker warning sign should be provided that shows the clearance and electrical line voltage. The warning sign should face oncoming traffic and state, "**DANGER, HIGH VOLTAGE OVERHEAD**."

4.6.3 Utility Crossing Reclamation's Canal

Utility crossings include open ditch laterals, subsurface and surface drains, levees, and similar facilities.

General Requirements:

1. Utilities crossing Reclamation canals should be designed to cross perpendicular (between 70 and 90 degrees).

2. Pier construction in the canal for new utility crossing(s) should not be allowed. New utility crossings should be free span design.

3. Open cut crossings of Reclamation canals and ditches, when allowed, should require replacing linings to re-establish the original construction style and materials (i.e., disturbed concrete lining panels should be removed in their entirety and replaced, membrane lining and earth or concrete protective cover should be re-constructed, gravel and canal under-drainage systems should be re-established to full working order, etc.) Proposals should be submitted for approval with the crossing permit application.

4. For trench excavation and backfill requirements, refer to "3.2 General."

5. Boring and jacking of a utility through canal embankments or protective levees should not be permitted. Boring and jacking of a utility should be constructed through the embankment foundation materials. Applicants should make special design and construction considerations with bored crossings under canals containing water during construction. Among these should be using proper bentonite slurry to seal the annulus space between the utility conduit and the boring cavity from canal seepage. Refer to appendix A for more details to be considered.

   The applicant's drilling plan should cover:

   a. Drilling methods and equipment

   b. Methods for preserving existing foundation material

   c. Methods and equipment to determine the presence of quick soil conditions or scouring and caving

d. Proposed method for casing installation and removal if casings are used

e. Methods and equipment for accurately determining the depth of concrete and actual or theoretical volume placed

The applicant's contingency plan should cover:

a. Means to repair in a certain time

b. Minimum flows after event

c. Review of geotechnical conditions surrounding the pile locations

d. Assessment of how the proposed mitigations will address geotechnical conditions

e. Methods for restoring foundation material

f. List of material, equipment, and personnel with qualifications to be used during mitigation work

g. A seal from a Professional Engineer on all relevant plans and drawings

6. When horizontal directional drilling (HDD) or other trenchless methods are used, canal seepage conditions may be aggravated by the collapse of the canal foundation material into the annular void between the bore and pipe. Penetration through the top stratum of fine-grained materials may concentrate seepage at those locations. Pipe installed with trenchless methods should proceed only after completion of a comprehensive evaluation of the following:

(a) Comprehensive understanding of the subsurface soil and groundwater conditions to a minimum depth of 20 feet below the lowest pipe elevation

(b) Locations of the HDD pipe penetration entry and exit

(c) Construction procedure

(d) Allowable uplift pressures

(e) Onsite quality control and quality assurance monitoring during construction operation

(f) Grouting of the pipe annulus

(g) Backfilling of any excavated areas

(h) Repair and reinstatement of the construction staging areas

A geotechnical report should be submitted with the application for review prior to approval of the proposed utility crossing.

Directional drilling under a canal may be considered if a minimum clearance of 25 feet to the bottom of the canal lining is maintained for utilities with less than a 24-inch outside diameter. Larger utility crossings should be considered on an individual basis and may require additional clearance from the bottom of the canal lining.

7. Cut and cover constructed utilities under Reclamation canals should have a minimum cover of 36 inches when within Reclamation's ROWs. Bored construction utilities should have a minimum of 3 diameters cover.

8. Reclamation's ongoing O&M activities should not be disrupted during crossing construction. The primary or secondary operating road should be kept available for Reclamation use at all times.

9. Canal embankments should be re-built or repaired with materials and standards equal to or better than the existing embankments.

10. Drawings should be stamped and signed by a Professional Engineer and contain the following information:

    a. Canal milepost or station at each proposed crossing, utility size and location, and type of utility or material transported

    b. Maximum utility operating pressure, type of pipe, joints, wall thickness, maximum test pressure, and description of test procedures

    c. Type of sleeve/casing (when allowed) including diameter, joints, and wall thickness

    d. For utilities attached to a bridge or an overchute, details showing the structure name, superstructure, abutments, embankments, protective dikes, method of attachment, spacing of utility supports on the structure, location of other attached utilities, and structural calculations

e. Protective coatings and corrosion control measures

f. Method of handling pipeline expansion and contraction

g. Location of nearest shutoff valve on each side of the crossing

h. Location and details of thrust restraint

i. Design code(s) used for the utility crossing

j. Location, including depth, of the buried pipeline communication and control cables

k. Other existing utility easements in the immediate vicinity

Hazardous Material Carrier Requirements:

1. Pipelines carrying hazardous material or pollutants (e.g., oils, gasoline, sewage, contaminated waters, and nonpotable waters) should be designed for a reduced risk of failure in the portion within Reclamation's ROW. The design should require either:

    a. Designing the crossing pipeline with an additional 50 percent working pressure factor

    or

    b. Using secondary containment (casing pipe) for all hazardous material pipelines

2. To minimize the amount of any hazardous material entering the canal, Reclamation may require the installation of a block (gate) valve and or a check valve on each side of the canal between the ROW boundary and the embankment. When selecting the type of the valves, take into the account the flow direction and the terrain.

3. A final hazardous material spill contingency plan and an emergency response plan should be approved by Reclamation prior to start of construction.

4. A monitoring program and/or Supervisory Control and Data Acquisition System alarm may be required depending on the hazardous material transported. This applies to all "overcrossings" and "undercrossings" when the hydraulic grade line is within 60 inches of the canal liner or when local geology would promote this requirement.

Attaching Utilities to Bridges and Overchutes:

Note: Reclamation does not guarantee the long-term availability of bridges or overchutes as support devices for utility crossings because they may require structural modifications or alterations to accommodate widening, repairs, subsidence offsets, etc., to such an extent that service may be interrupted or stopped. Reclamation may determine the bridge is no longer required and may remove it. In that event, the owner/operator of each utility attached to a bridge or an overchute may be required to re-locate or permanently remove their utility at their own expense.

Specific details for attaching utilities to bridges are:

a. Utilities should not be placed on the bridge deck.

b. Anchor bolt locations should not intercept the critical reinforcing steel of the bridge.

c. Utilities should be placed and anchored under bridge decks between girders and through utility openings, if they are present. The utility should be placed off center in the utility opening, if possible, to allow for future utility additions.

d. If an expansion joint is used in the pipeline, it should be placed near the bridge deck expansion joint.

e. Holes through bridge concrete or abutment and retaining walls for passage of utilities may be allowed and should be core drilled. The annular space between the utility and core hole surface should be completely filled with an elastomeric sealant to prevent loss of material or water piping from behind the wingwalls and abutments.

f. Calculations showing the effects of the weights of the proposed utilities on the load carrying capacity of the bridge should be submitted for Reclamation review.

g. Intermediate supports for the utility should withstand the seismic conditions of the bridge.

4.6.4 Utility Crossing Reclamation's Underground Pipelines

1. The applicant should submit the procedures, excavation plans, schedules, as well as type and weight of the construction equipment to be used for crossing the Reclamation pipeline.

2. High voltage, direct current powerlines should not be permitted to encroach on the Reclamation pipeline ROW, except in unusual circumstances and with proper cathodic protection considerations.

3. For proposed metallic pipelines, refer to "5.0 Cathodic Protection Requirements."

4. For utilities crossing above or under the Reclamation pipeline, the vertical clearance between the utility and Reclamation pipeline should be a minimum of 12 inches.

5. The location of the Reclamation pipeline and the communication and control cables throughout the area of the proposed construction should be shown on the plans. Prior to Reclamation and/or AOE issuing a use authorization or consent document, the pipeline and the cable(s) should be located and exposed by potholing. The pothole locations should be shown on the drawings. The pothole elevations should be referenced to Reclamation stationing or milepost. (Refer to "3.2 General.")

6. Drawings should contain the following information:

    a. Reclamation milepost or station at each proposed crossing, pipeline size and location, and type of utility or material transported.

    b. Maximum utility operating pressure, type of pipe and joints, maximum test pressure and description of test procedures, wall thickness, and utility pipe classification.

    c. Type of sleeve/casing pipe (when allowed) including diameter, joints, and wall thickness.

    d. Protective coatings and corrosion control measures.

    e. Location of nearest shutoff valve on each side of the crossing.

    f. Location and details of thrust restraint.

    g. Design code(s) used for utility crossing.

    h. Location, including depth of the Reclamation pipeline and the communication and control cables.

    i. Other existing utility easements in the immediate vicinity.

7. Detectable warning tape may be required over trenched utilities. (Refer to "3.3 Detectable Warning Tape.")

8. For trench excavation and backfill requirements, refer to "3.2 General."

9. Embankments should not be permitted within Reclamation's ROW where underground pipeline exists.

4.6.5 Utility Crossing Under Reclamation's Roadways

1. The applicant should supply typical cross sections that show existing ground surface elevations, utility trench invert elevations, and utility details.

2. For trench excavation and backfill requirements, refer to "3.2 General."

3. Conduits with diameters up to 24 inches should be bored and jacked underneath pavements. Larger conduits may be considered on an individual basis. Pavement or road surfaces should not be cut unless an acceptable detour, if required, is approved. The cover over the conduit(s) when within Reclamation's ROWs should be a minimum of 36 inches. (Refer to "3.2 General.")

4. Unless otherwise approved, the applicant should replace existing Reclamation roads and parking surfaces that are removed or damaged by the applicant's construction activities in accordance with provisions in the latest edition of the applicable State DOT Standard Specifications.

5. If existing road embankments are to be widened, the work should be conducted in accordance with the provisions of embankment construction in the applicable State DOT Standard Specifications.

6. Detectable warning tape may be required over buried utilities. (Refer to "3.3 Detectable Warning Tape.")

5.0 CATHODIC PROTECTION REQUIREMENTS

5.1 Cathodically Protected Metallic Pipelines

Unless approved in writing by Reclamation, metallic pipelines or those containing metallic reinforcement (e.g., reinforced concrete) installed within Reclamation's ROW should have a suitable bonded dielectric coating (see "5.2 Protective Coatings for Corrosion Control") and be cathodically protected. Impressed current cathodic protection rectifiers and deep-well anode systems should not be

permitted within Reclamation facilities without prior approval from MERL's Corrosion Technology Group. All submittals should include details of the cathodic protection system (CPS) and its appurtenances.

1. All existing Reclamation cathodic protection test stations, cables running to these stations, rectifiers, anode beds, and any other appurtenances should be located prior to any grading or excavation. The test stations should be staked and flagged. The test stations, cables running to these stations, any anode beds, etc., should be suitably enclosed or protected during construction to prevent damage. No re-location or modification of the test stations, cables, anode beds, etc., is allowed without prior approval from MERL's Corrosion Technology Group.

2. Generally, the CPS to the proposed pipeline should be the sacrificial anode type unless the proposed installation continues an existing pipeline that uses impressed current type of cathodic protection.

3. A means of monitoring the effectiveness of the CPS on the proposed pipeline should be provided within Reclamation's ROWs. The number of anodes and test stations will differ with each project. Test stations should be located at every anode bed connection and should not be more than 1,000 feet apart. A test station should also be located where any metallic pipeline crosses over or under a metallic Reclamation pipeline, metallic fence, other metallic structure embedded in the ground, or comes within 20 feet of a Reclamation structure on or embedded in the ground. Both the proposed cathodically protected pipeline and the Reclamation pipeline should be monitored regularly using these test stations. Monitoring results should be reported to MERL's Corrosion Technology Group. In addition, the owner of the proposed crossing pipeline should investigate and mitigate any adverse potential shift caused by the proposed pipeline on the Reclamation pipeline. Owners of proposed crossing pipelines should return Reclamation pipelines to their original electrochemical potentials or to more benign potentials. Mitigation measures should be approved by MERL's Corrosion Technology Group. The effectiveness of mitigation measures should be confirmed in the presence of a Reclamation representative following installation.

   For those pipelines under DOT regulation, the application and monitoring of the CPS should conform to Title 49 CFR, Part 195, any special provisions of this guideline, and the provisions of NACE International RP 0169, in that order. For other pipelines, any special provisions of this guideline should take precedence, followed by the provisions of NACE RP 0169.

5.2 Protective Coatings for Corrosion Control

1. *Atmospheric Exposed Pipe*

   The coating should be a high build modified aluminum epoxy mastic primer and top coated with a high build aliphatic urethane. The type of coating should be listed in the submitted plans and specifications. Information should include the surface preparation and the thickness of the coating to be applied.

2. *Buried Pipe*

   The type of coating may vary from project to project due to geology and soil corrosivity and should be considered on an individual basis. The type of coating should be listed in the submitted plans and specifications. Information should include the surface preparation and the thickness of the coating to be applied.

REFERENCES

Application for Transportation and Utility Systems and Facilities on Federal Lands, <http://www.ntia.doc.gov/FROWsite/SF-299_2006.pdf>.

Application for Use of Reclamation Project Land and Water Surfaces, <http://www.usbr.gov/pmts/lands/>.

Bureau of Reclamation Right-of-Use Application, <http://www.usbr.gov/pmts/lands/FINAL7-2540-5-06ExpDate03312009.pdf>.

California Department of Water Resources - Encroachment Permit Guidelines.

Central Arizona Project, Reach 11 Guidelines.

GP Region Billings MT – Standard Crossing & Clearance Requirements, Utility Lines and Cables, drawing 40-600-51. The office also uses a Preliminary Project Description Form and a Special Use Permit.

NACE, International RP 0169, "Standard Recommended Practice – Control of External Corrosion on Underground or Submerged Metallic Piping Systems."

PN Region Burley ID – Overhead and underground crossing clearances.

Policy on Geometric Design of Highway and Streets, American Association of State Highway and Transportation Officials (AASHTO), Fifth Edition, 2004.

Reclamation, 2005. Preliminary drawing 103-D-1700 that provides general requirements for installation of crossings, June 2005.

Reclamation Manual, Directive and Standards LND 08-01, Land Use Authorizations, <http://www.usbr.gov/recman/lnd/lnd08-01.pdf>.

Title 29 CFR, Part 195.

U.S. Army Corps of Engineers – Engineering and Design, Design and Construction of Levees EM 1110-2-1913, 30 Apr 2000, CECW-EG Washington, DC 20314-1000.

GLOSSARY

Bored and jacked – This terminology is a general way of referring to a family of trenchless methods.

Bridge, class A – Vehicular bridge used by the public. May or may not be owned by the Bureau of Reclamation.

Consent Document Permit – Permit required across fee-owned lands.

Detention basin – An artificial flow control structure used to contain flood water for a limited period of a time, thereby providing protection for areas downstream. Detention basins provide a way to reduce storm peak flows, while retention basins hold water for an extended period of time. These basins are generally a part of a larger engineered flood water management system.

Electroliers – A branching frame, often of ornamental design, used to support electric illuminating lamps.

Pothole excavation – See potholing.

Potholing – The practice of digging test holes to expose underground utilities (e.g., cables) to determine the horizontal and vertical location of these utilities.

Trenchless methods – Procedures for installing pipe without using traditional trench cut and cover methods. These trenchless methods may be referred to as bore and jack, tunneling, horizontal directional drilling, and microtunneling, among others.

Water conveyance facility – Canal, ditch, pipeline, drain, levee, open or closed laterals, and similar facilities and their associated appurtenant features.

Appendix A

General Requirements for Installing Bored and Jacked Pipe Undercrossings

Bored and Jacked Under the Canal – This terminology is a general way of referring to a family of trenchless technologies. Similar guidance to the requirements listed below should be followed no matter what method is used for installation.

1. Installing a lone carrier pipe (without casing) is encouraged. Refer to "4.6 Utility Crossing," and "4.6.1 Casings" for information on cautions of using casings around metallic carrier pipe.

2. Plans must show carrier/casing pipe type, diameter, and thickness. Casing pipes should be steel pipe (American Water Works Association [AWWA] C-200) and have 1/4-inch minimum wall thickness. Applicants should provide the type of carrier pipe and appropriate bell dimensions for said carrier pipe to verify annular clearances.

3. When installing pipe while the canal is unwatered, a minimum of 3 pipe diameters or 60 inches of clearance (whichever is greater) between the top of the pipe and the bottom of the canal must be maintained. However, 72 inches or more clearance is recommended.

4. Provide a minimum of 3 inches of clearance between the carrier and casing pipes at all points (including bells).

5. A bulkhead or effective sealing device should be provided at both ends of each casing pipe to seal the annular space between the two pipes. Vent pipe should be included to allow ventilation and reduce the risk of condensation buildup and flooding.

6. As a result of the installation process, an annular void is usually created around the outside of the casing pipe. Provisions should be made to pressure grout or effectively seal (e.g., bentonite slurry) this void space.

7. Requirements below are provided to establish minimums for determination of the length of pipe to be installed. It is strongly recommended that pipes be installed perpendicular (between 70 and 90 degrees) to the canal alignment. Regardless, the pipe must extend completely through the Bureau of Reclamation's (Reclamation) right-of-way (ROW). Theses minimums do not relieve the applicant's engineer from performing an onsite investigation or other work to determine local conditions that may require additional pipe length.

   Jacking pit configuration, location, and length of pipe to be installed should be based on the following parameters:

   a. One operating road shall remain open to vehicular traffic at all times.

b. The minimum operating road embankment top width to be maintained during construction should be either 14 feet wide, the width of the existing embankment, or as required by Reclamation.

c. As a minimum, jacking pit excavations should not be within:

(1) A line drawn from the outside edge of the operating road embankment extended downward and away from the canal at a slope of 3/4 horizontal to 1 vertical.

(2) A line drawn from the outside edge of the top of the concrete lining extended downward and away from the canal at a slope of 1 horizontal to 1 vertical.

d. To contain the slurry during installation, jacking pits should be constructed so that natural ground or a compacted dike is entirely around the pit to an elevation at least 1 foot above the top of the canal lining.

e. All excavations should be in compliance with Occupation Safety and Health Administration regulations and Reclamation's Health and Safety Standards.

f. If the contractor elects to install shoring in the jacking pits, all shoring designs should be prepared by a Professional Engineer knowledgeable in said type of work. A copy of the shoring designs should be submitted to Reclamation.

8. Jacking pits should be backfilled with native material and mechanically compacted to 95 percent of the maximum dry density per ASTM D-698.

9. The contractors should be responsible for any damage to the canal section during the construction of a crossing, and the contractor shall repair the damage at their own expense.

10. If an emergency situation develops during construction, the contractor should immediately notify appropriate contacts with Reclamation. Reclamation must approve further work at that point.

11. The minimum distance between two jacked pipes should be 10 feet.

12. Any pressure lines installed within Reclamation's ROW must have adequate thrust restraint at bends and valves. Specified design pressures and thrust restraint calculations shall be provided to Reclamation to confirm the design configuration.

Appendix B

Guidelines – Removal of Trees and Other Vegetative Growth from Earth Dams, Dikes, and Conveyance Features

Excerpted from: Review of Operation and Maintenance Program Field Examination Guidelines

APPENDIX B

GUIDELINES
REMOVAL OF TREES AND OTHER VEGETATIVE GROWTH FROM EARTH DAMS, DIKES, AND CONVEYANCE FEATURES*

Growth of trees and other significant vegetation on or adjacent to earth dams, dikes, and conveyance features, should be prevented from becoming established for the following reasons:

1. To allow proper surveillance and inspection of the structures and adjacent areas for seepage, cracking, sinkholes, settlement, deflection, and other signs of distress.
2. To allow adequate access for normal and emergency Operation and Maintenance (O&M) activities.
3. To prevent damage to the structures due to root growth, such as shortened seepage paths through embankments; voids in embankments from decayed roots or toppled trees; expansion of cracks or joints of concrete walls, canal lining, or pipes; and plugging of perforated or open-jointed drainage pipes.
4. To discourage animal/rodent activity (by eliminating their food source and habitat), thereby preventing voids within embankments and possible shortened seepage paths.
5. To allow adequate flow-carrying capability of water conveyance channels (e.g., spillway inlet and outlet channels; open canals, laterals, and drains).

The growth of trees and potentially detrimental vegetation should be prevented during its early stages as part of the operating office or entity's normal O&M program. Early control is generally the most cost effective means of avoiding potential adverse effects on these structures from their continued growth. Control efforts may consist of applying herbicides, spraying, cutting, and/or removing the trees or undesirable vegetation.

Suggested clearance zones (areas of control) adjacent to these structures are provided within these guidelines. Concerted efforts should be made to maintain these clearance zones. However, site-specific conditions, such as landscaping, accessibility, erosion susceptibility of material in the area, type of abutment material, original construction clearance zone, right-of-way easement, etc., may influence the necessity or success of these control efforts.

Should trees and/or other significant vegetation become established, proper O&M of earth embankment dams, dikes, and conveyance features, may require their discriminate removal. During the Review of Operation and Maintenance examination for the facility or system, the examiners should use these guidelines, along with their experience and professional judgment, to evaluate the need for removal of such established growth.

If trees and other significant growth are identified by the examination team in locations delineated by these guidelines, a determination should be made regarding their need for removal. If the identified vegetation is deemed to be in location such that its existence is not considered to be detrimental and therefore does not require removal, sufficient justification should be provided during the examination and included within the associated report to support that determination.

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* Enclosure to memorandum dated April 26, 1989, from Manager, Project Operation Services Staff, to all Regional Directors, Subject: Revised Guidelines — *Removal of Trees and Other Vegetative Growth From Earth Dams, Dikes, and Conveyance Features.*

When, in the opinion of an Review of Operation and Maintenance examination team, such established growth requires removal, specific followup procedures should be addressed as part of the examination. Such procedures may include the need for right-of-way easement determination; the need for an assessment for potential environmental impacts (any impact assessments should be coordinated with designated regional or project office environmental staff); whether removal of the root system is necessary and to what extent; the method of removal and recompaction of material within the void created; and the need for any erosion stabilization measures.

National Environmental Policy Act compliance is required relative to such tree and vegetation removal. Additionally, the application of herbicides should comply with applicable provisions of the Endangered Species Act. The determination of appropriate procedures to be followed in assessing potential environmental impacts and mitigation (including those to wildlife and its habitat) will be the responsibility of each regional and/or project office. This will include the preparation of an appropriate National Environmental Policy Act document and an assessment of the need for mitigation prior to the onset of removal activities. Appropriate National Environmental Policy Act compliance may include a Categorical Exclusion Checklist, an environmental assessment followed by a Finding of No Significant Impact, or an Environmental Impact Statement.

The following guidelines and associated clearance zones should be used for all Reclamation earth dams, dikes, and conveyance features. They are not considered "policy;" rather, they are guides which should be used with reasonable judgment and practicality.

1. Trees and detrimental vegetative growth should be prevented from becoming established on the surface of all earth dam, dike, and conveyance feature embankments. A small amount of shallow-rooted vegetation may be acceptable to aid in erosion protection and slope stabilization. Mowing of grass and other small vegetation is desirable and may be necessary to allow proper surveillance of the surfaces and observation of animal/rodent activity.

2. A clearance zone of 25 feet beyond each contact (groins and toe) of earth dam embankments and dikes should be maintained of all trees and detrimental vegetation. Similarly, a clearance zone of 15 feet should be maintained beyond the outside toe of all fill sections/embankments for open canals and laterals. These clearance zones may need to be extended for seepage areas or other conditions where proper surveillance or access may be warranted.

3. Earth dam, dike, and conveyance feature (open canal and lateral) embankments have large tree growth or stumps from previously cut trees on or near them should be evaluated, usually in conjunction with an Review of Operation and Maintenance examination, for any necessary future action, (i.e., monitor, excavation and backfill, rebuild, etc.). Generally, sizable old root systems of large trees should be grubbed out and the embankment replaced and compacted to prevent the development of piping action or erosion. Likewise, any sizable voids resulting from animal/rodent burrowing activity should be filled and compacted. Seeding may be necessary for protection from surface erosion.

4. Spillway inlet and outlet channels, outlet works discharge channels, and other open conveyance channels (open canals, laterals, and drains) should be free of vegetative growth that could significantly impede water flow or reduce design capacity.

5. A clearance zone of 25 feet adjacent to all concrete structures associated with such facilities should be maintained of all trees and detrimental vegetative growth to prevent damage from root growth, to allow proper surveillance, and to allow adequate O&M access.

6. Associated cut slopes adjacent to open canals and laterals should be kept clear of vegetation which, if toppled and/or uprooted, could affect operations or O&M access.

7. For pipe conveyance systems (such as siphons, aqueducts, discharge lines, perforated or open-jointed drains, etc.), to provide O&M access and to prevent root encroachment, a clearance zone should be maintained 15 feet from each side of the pipeline. However, in some cases, farming of annual crops over pipelines may be permissible.

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